# ECONOMICS

BY

EDWARD THOMAS DEVINE, PH.D.
GENERAL SECRETARY OF THE CHARITY ORGANIZATION
SOCIETY OF THE CITY OF NEW YORK
SOMETIME FELLOW IN THE UNIVERSITY OF PENNSYLVANIA, AND
STAFF LECTURER OF THE AMERICAN SOCIETY FOR THE
EXTENSION OF UNIVERSITY TEACHING

New York
THE MACMILLAN COMPANY
LONDON: MACMILLAN & CO., LTD.
1902

Set up and electrotyped November, 1898. Reprinted July, 1902.

Norwood Press
J. S. Cushing & Co. — Berwick & Smith
Norwood Mass. U.S.A.

# PREFACE

SEVERAL chapters of this book were originally printed as lessons on Economics in *University Extension*, a magazine published in the interests of the movement for the Extension of University Teaching. Those chapters, in a somewhat expanded form, were submitted as a thesis to the University of Pennsylvania in 1893. Other portions have appeared as University Extension courses at the Oxford (England) Summer Meeting and in various centres of the American Society.

The presentation of the entire subject, while influenced in great measure by such contact with students who approach the subject from active life, is intended also for the class room of the college and high school. The inspiration which, in common with scores of the younger generation of economic students, the author has

received from "that prince of teachers," Simon N. Patten, Professor of Political Economy in the University of Pennsylvania, will be sufficiently obvious to any reader of the current literature of the subject.

NEW YORK, 1898.

# CONTENTS

# ECONOMICS

## CHAPTER I

### THE ECONOMIC MAN

ECONOMICS is the science of man in his relation to wealth. By wealth is meant, not as in common speech, a large quantity of desirable goods, but rather all desirable things in quantity great or small. The unit in economic observations and reasonings is man as a member of a wealth-producing and wealth-using community. The terms used in the study imply human needs, relations, and activities. The man who is of interest to the economist has need of goods, some of which are given free by nature, some like natural fruits, given free by the community in which he lives, some like the farmer's grain, produced by his own efforts, and some like the food on the mechanic's table, given by the community in return for the product of his

labor. The economic man has the capacity for performing useful service of some sort, and for uniting with his fellow-beings on some sensible basis for mutual exchange of services. A preliminary description of the economic man is necessary: for a mastery of this single expression is to the economist what an intelligent appreciation of the character of the cell is to the biologist, or an understanding of the school of the soldier to the student of military tactics.

The economic man, then, is a human being. The term is generic, including both men and women; not merely those who are usually called breadwinners, but also the bread preparers. Men and women may do different work, their place in the economic world may be distinct,[1] but both are included in the term by which we designate the unit with which our study deals.

The economic man, secondly, has material and spiritual wants which are satisfied by means of goods. The quantity and character of goods desired may vary widely at different times and

[1] See *Economic Function of Woman*, by the present author, Publications of the American Academy of Political and Social Science.

places, furnishing an indication in each case of the particular kind of economic man then and there to be found. Some wants, however, are universal. Of these, food is first in importance, and has sometimes been taken by a figure of speech as a collective expression for all the goods required to supply man's wants. This is done, for example, by the economists who trace a connection between the wages paid to laborers and the cost of food. Strictly speaking, the relation is between wages and the cost of living. Next in importance are shelter and clothing, though in point of time ornaments are perhaps desired at an even earlier stage. Human association and religious worship are among the most primitive goods, and these desires remain of chief importance in every stage of civilization with which we are familiar. Besides these fundamental wants there are innumerable special desires and a class of goods to correspond to each, however fantastic or however common.

Man as the object of economic inquiries, having human desires, has also human capacities. Infants, idiots, idlers, invalids, and criminals are excluded more or less completely in accordance

with the degree of their incapacity. Those who are entirely dependent, and those whose natures are so perverted that society cannot afford to give them an opportunity for the free exercise of their powers, are not to be regarded, for purposes of economic study, as integers in human society. Their presence raises many interesting economic questions, but they are not themselves economic men. It is obvious that different economists may have different views of the exact place where the line separating economic men from dependents should be drawn, and that some writers may not take the trouble to think out the distinction carefully, leaving even themselves in uncertainty whether, for example, persons supported in part by their own efforts and in part by charity [1] are or are not included in the observations which they make. Probably it would be most satisfactory to draw the line sharply between the economic man and the social debtor, including in the first class only those whose withdrawal would be felt to be a real economic loss to the community,

[1] In England at one time nearly all common laborers received public relief at some period of their lives.

and in the second class all who live upon others. Immense consequences flow from this distinction. It has been recognized tacitly by many of the writers on economic subjects. Careless critics, failing to discover that the economists were thinking only of the real members of economic society and not of the social debtors, have declared that their principles were false, because they did not apply to this or that special class, when in all probability the principles should have been applied only to the free and effective workers, the intelligent users of wealth, to the economic man whose desires and capacities are normal.

We may find a useful comparison in civic relations. The citizen is one who is a member in full standing of the political community, who may claim the usual rights, and expects to perform the ordinary duties of citizenship. Nearly all nations have tolerated the presence of other persons who share in the protection of the government, who are required to obey its laws, and who may have certain civil rights which may be taken away, however, or modified without their consent.

The distinction between the economic man and the social debtor is somewhat similar. The great body of the active workers throughout the world, whether day-laborers, skilled mechanics, merchants, or brain-workers, constitute a solid industrial community, each part connected by numerous bonds with every other part, each member contributing something that will satisfy the wants of himself or of others, and each aiding to some extent to determine what kind of goods he himself and others who are at work shall produce. Excluded from this body by their failure to make any such contribution are the social debtors — the idlers, the inefficient, the industrial failures. Their failure may be due to natural weakness, or to misfortune, or to a criminal unwillingness to take part in honest toil. There is no law or constitutional provision excluding them as a class from the industrial world, and nearly all who are able to work at all are at times persuaded or compelled to do so. But their work is irregular and of little value, and in large part they rely upon the bounty of others who are united to them by social or religious ties, or upon the care given by the state.

When they are employed, they are apt to receive from motives of pity or for other reasons more than they really earn, thus concealing the extent to which they are supported by the active workers.

It must not be thought that all social debtors are blameworthy. Those who are at one time dependent may have done useful work at some previous time. Many who appear to be completely disabled are nevertheless producers because they influence and stimulate the efforts of others. Young children might be thought equally useless with those whom we have called social debtors, but excepting those who are to remain useless all their lives it is better to regard them as workers in preparation. Our attention is directed toward their development into healthy, well-balanced, useful members of the community, and it is expected that they will gradually fit into their natural places of economic activity, first in their own homes, and then in some chosen occupation for which they will have been prepared.

Perhaps at some time in the future we shall come to think of all social debtors, except those

who are disabled, in much the same way as undeveloped, untrained members of society, who can be transformed into active members by some suitable course of instruction and discipline. Farm colonies for tramps, indeterminate sentence in prisons, military and naval service, maintained in some countries on a large scale partly for its educational value, and the many attempts to restore individual families to self-support by means of the personal influence of friendly visitors, all rest upon this idea. Such agencies as these counteract to some extent the downward tendencies caused by "hard times," overwork, unhealthful sanitary conditions, intemperance and immorality, which every year in every country leave by the wayside thousands who have had the capacity for work.

Without attempting, therefore, to fix the moral responsibility for the difference between those whom we call economic men and the social debtors, or to find out at present why there are so many in the latter class, it is sufficient to point out the distinction and to warn the student that nearly all economic discussion refers to the first class, which is fortunately, also, by far the most numerous.

The laws of value, of wages, of profits, of interest, of rent, of money, of credit, of consumption, of social progress, are laws operating in a society of equals.[1] The unit of all calculations is the economic man with clearly defined wants, with personal capacity for some kind of useful work, with the power of choosing between higher and lower pleasures, between the satisfaction enjoyed to-day and that insured for a future period, and with a social nature enabling him to work in some degree of harmony with other men. It must be admitted that every true economic principle would remain true when applied to a single man in the midst of a desert, or to a society of dependents all living, without any effort or responsibility of their own, on the direct bounty of some outside power. But the principles would then be applied very differently. Their relative importance would be altered; and the practical conclusions to be drawn from them might be completely reversed. Thus in a society composed entirely of dependents the desire for food and for shelter might remain

[1] This word is of course used in a relative sense. Economic men are equals in that all earn their living.

among men as at present, but if the outside power gave shelter freely and food sparingly, the relative value of these two classes of goods would be influenced by this fact just as at present it is influenced by the relative cost of securing them.[1]

No student of economics could entirely forget, even if he desired to do so, the social conditions in the midst of which he finds the economic laws to be in operation. It is natural to keep those actual conditions constantly in view, whether practical conclusions are drawn and practical applications made or not. Economic men constitute society. On the outer fringe of the society to be studied is the social dependent. He cannot be ignored. He is not to be explained by exactly the same principles as apply to society in general. The social debtor may be cast aside to perish, or tolerated as a persistent drain on the social income. Neither course is wise, though human society is constantly alternating between them.

Leaving aside this problem of practical philanthropy, we return to our society of economic

[1] See p. 85, Chapter V.

equals to consider what mental traits may be discovered which are as universal as the physical characteristics already pointed out. Foremost among these is the feeling of personal independence, of confidence in the ability to earn one's living, a sense of security on the part of the individual in the continued public appreciation of the services which he can render. Where this confidence is lacking, the man is not conscious of full economic freedom. Where it is robust and universally shared, the economic ideal is realized. The possession of property no doubt strengthens this sense of security, but its real basis is personal, and it is to a large extent independent of any present possessions other than physical health, mental vigor, and a free opportunity to use one's powers to the best advantage.

Coupled with this feeling of personal independence there is, in the normal economic man, an unwillingness to take for personal use any wealth which he has not earned. He would not steal even if the laws did not prohibit it. He will refuse to accept presents except as courtesies which will in some way be reciprocated. He

will accept the highest possible reward for his own labor, because that is the law of his society, and he willingly sees others exact similar terms of exchange; but if he were to find himself in position to pocket the wealth belonging to others, he would reject the opportunity, insisting upon such social rearrangements as would restore the wealth to its rightful owners. If the facts of actual life appear to be in conflict with this broad principle, it is partly because individuals are sometimes brought into possession of property as the result of complicated legal and social relations which they do not fully understand, so that they do not appreciate to what extent they have really become dependents, or social debtors, and remain under the delusion that they have in some way earned and are entitled to all that they have; and partly because there are many persons who having such opportunities eagerly seize them from what is at bottom a criminal instinct. They thus belong in the criminal class of social debtors. The laws even of civilized countries are imperfect, and do not reach all wilful offenders; but they are steadily improving, and in no direction at the present

time more rapidly than in their extension to the class who, having large income, attempt to escape a just accounting for its origin. The reason for this improvement is not a class feeling of envy or resentment, but the fact that the great body of citizens, rich and poor, deliberately act upon principles of equity, and sternly insist that those who refuse to recognize those principles shall be put where they belong, beyond the pale of honest citizenship.

Another mental trait of the economic man is his readiness to accept the final judgment of the community as to the market value of the commodities and services which he wishes to buy or sell. He may use great ingenuity and skill in the attempt to make that judgment more favorable to himself and to those whose interests are identical with his own, but he accepts it nevertheless as the basis of his economic relations with his fellows. The line between the economic man and the social debtor is nowhere more clearly drawn than here. The latter may be given an income determined by his human needs, or by the public safety, or by the generosity of those who deal with him, or by the

amount of the free surplus at the disposal of society. Any of these methods of distribution involves inquiry into the personal affairs of the recipients, such as would be resented by the normal economic man. Such inquiry would be humiliating to one who is not in need of assistance. It may or may not be humiliating to a dependent according as the dependency is, or is not, caused by his own fault.

Economic society might conceivably adopt some other basis of wealth distribution such as that proposed by the socialists or the communists. But present opinion in all countries, and, as far as all history shows, the practically universal opinion of the past, has been in favor of a general market value for each class of goods, nicely adjusted to the total quantity of such goods available, and to the demand or general desire for them. Attention will be given in due time to the exact nature and laws of value. At present it is only necessary to point out the universal acquiescence in the fact of value as a characteristic of that part of the human family with which we are directly concerned. Those who struggle for higher wages,

no less than others who attempt to sell land or diamonds at the highest possible price; advocates of a single gold standard, no less than bimetalists who would like to see the price of silver increased; scholars who prize books and instruments of research, and an opportunity for travel, and free time for meditation and study; parents who weigh carefully the cost of proposed courses of education for their children; every one who has any kind of unsatisfied desire takes value into consideration.

The economic man has many other characteristics less easily described, but these are fundamental, are easily recognized, and will remain as a part of our conception, however extensive may become our acquaintance with his less obvious traits. It has already become obvious that the economic man is not a mere abstraction and that he is not a rare exception. He is not only a human being. He is the normal human being of ordinary life. To an increasing extent we are all becoming economic men.

# CHAPTER II

## THE ECONOMIC ENVIRONMENT

LIKE geography and some other sciences, economics requires a knowledge of man's surroundings. Those surroundings are partly physical and partly social. What economics demands of physical science is a knowledge of the particular facts concerning the surface of the earth and the atmosphere which have any direct bearing upon man's welfare. If it were our task to account for those facts, it would be necessary to bring into our study all the teachings of astronomy concerning the past and present of the solar system, all the teachings of geology concerning the formation of the crust of the earth, and the teachings of biology concerning the natural history of plants and animals. If, on the other hand, we were to attempt an examination of all those branches of human knowledge which indirectly contribute to the welfare of man by furnishing to

mechanic, farmer, or physician, the necessary equipment of his calling, we should speedily get beyond the proper boundaries of any single science. Our inquiry is much less extensive and may be stated in this way: Of what general conditions must account be taken in man's struggle with nature for a living? Or, in other words, what are the facts which determine the character of his economic life?

It is evident that we cannot borrow indiscriminately from geography, geology, or other sciences. There are innumerable facts which are essential to a well-ordered description of the earth's surface which are not essential in a statement of man's economic surroundings, because they have a very remote bearing, if any, upon the welfare of society. Such, for example, are the descriptions of many of the natural wonders of the Arctic regions and of the luxuriant vegetation of tropical swamps. The increase of knowledge or a shifting of conditions, such as the discovery of gold in the Klondike, or the transfer of tropical islands to a more efficient government, occasionally increases the relative importance of such facts,

giving them a new significance. By such means the environment, to adopt a more appropriate term for all these surroundings which have an influence upon man's welfare, is continually changing, certain conditions which were once of consequence ceasing to be so, and others rising to a prominent place. But the environment, as we shall use the term, never includes more than a comparatively small fragment of the universe, or, for that matter, more than a small portion of the facts and relations to be found on our own globe.

In searching for those conditions of physical nature which are the primary requisites of human activity, we encounter, first, what seems to be fundamental and universal, the existence of physical energy. The forces of nature are to a large extent placed under man's will. If this were not the case, man would not be able to exert any influence over his own well-being, and there would be no occasion for the study of economic laws. This physical energy appears in various forms, as heat, light, magnetism, gravitation, and muscular force. In any of its forms it is convertible into others. In this process, if intelligently directed, it trans-

forms useless matter into useful goods, and thus contributes to the end of all economic activity.

Physical energy is often totally misdirected with the effect that goods which might have been of use to men are destroyed, *i.e.*, given a form which renders them unfit for the use to which they would have been put. Perhaps it is never so directed as to be fully utilized. All human progress may be looked upon as an increase in the economy of physical energy. The new machine which utilizes a larger proportion of the force released by the burning of coal or the falling of water thus becomes a type of the progress of society.

The student of physics learns that whether man succeeds or fails in his attempt to utilize a particular form of energy for his own purposes, the energy itself is not lost. The physicist measures it, in its earlier and later forms, and finds that none has been destroyed. But such measurements do not concern the economist. The success or failure to utilize the energy in the particular form in which it was embodied is, from his standpoint, a final fail-

ure or success. If the coal in the engine does not drive the wheels successfully, it is of little consequence that the temperature of the surrounding air is slightly raised, and that gases are produced by the combustion. Infinite knowledge would be necessary for a complete utilization of the available natural forces. The amount of knowledge which we do possess is the slow product of experiment and research. Years may be spent upon the simplifying of processes of which we are already in possession. Hence the saying among machinists that anybody can make a machine to do a given kind of work, but only a genius can make a simple machine that will do the work cheaply and well.

A few of the forms in which physical energy appears are of sufficient importance to justify a fuller examination of their relation to human welfare.

Heat may be regarded as the primary requisite of plant and animal life. Not only is heat an absolute condition of such animal and vegetable life as we know, but it would seem to be essential that we receive almost precisely that

amount of it which we do receive.[1] A few degrees in excess of highest summer heat would destroy vegetation over a large part of the earth, and a few degrees less than our winter temperature would render a still larger part uninhabitable. The sun's heat is used directly in countless processes of agriculture and manufacture; it is an element in the formation of winds and ocean currents; and by raising water from the oceans in the form of vapor it permits the circulation through the continents. Stored up in beds of coal it becomes one of the most highly prized agents of industry, and again, in its more direct form, it is the source not only of that high degree of physical vigor which is essential to human enjoyment, but of life itself.

Light, like heat, is indispensable, and as in the case of heat, the chief supply of our globe is from the sun. We may, perhaps, conceive a society existing without light, but its activity would be very different from our own. Almost the whole of our work presupposes sight on the part of those who direct and perform it. Without light, dangers to life would be multiplied,

[1] Shaler, *Interpretation of Nature*, p. 66.

and countless sources of enjoyment would be destroyed. The dependence of human welfare upon the continued presence of a certain amount of energy in the form of light is therefore obvious. But it would be difficult to obtain a full measure of its contribution to our economic life. Color is as important in industry as in art, and both art and industry fall within the field of economics in so far as they contribute to human welfare. A faint illustration of the extent to which light enters into the environment may be found in the economy of time and labor resulting from the use of books and newspapers.

Gravitation is a third form of energy which demands special attention. No force is more familiar in the mechanical processes of everyday life, and it is all-pervasive. We rely upon it for the weight of the hammer, for the flow of water, and for the stability of objects when placed in position. Gravitation holds ships and railway trains in their courses. It draws the ripened seed and the withered leaf to the ground, and causes the circulation of air and of water for which preparation has been made by the action of heat. Because of its very familiar-

ity it is easy to underestimate the important part which this silent force plays in the life of man.

Among the various forms of physical energy, muscular force, and especially that exerted by human beings, has usually been assigned an unique place in economic texts. For certain branches of our discussion it will be of advantage to distinguish, in the total energy expended in any given industrial activity, that part which may be attributed to man's labor; but for our present purpose it will be simpler and entirely accurate to regard muscular force as one among many forms of energy, all of which, like muscular force, even if not in the same degree, are under human direction. Muscular force may be regarded as the highest form of physical energy, for the reason that the relation between the directive will and the energy to be controlled is here most immediate. It is not necessary to invent intermediate mechanism or device, or even, in many of the muscular processes, to make conscious calculation of means and methods. Action follows will with incredible swiftness. The natural force which has been generated in muscular tissue is nevertheless a

product of other forces. It has a natural origin in the food by which man is nourished, the heat and light, and the biologic forces upon which his existence and health depend.

The forces of nature, some examples of which have now been given, are capable of acting only upon matter. The transformation from one sort of energy to another takes place by the process of moving material objects. It is a commonplace of economics that man's part in industry is confined to the moving of things, but it is also in this manner that all physical forces act. Heat and gravitation cause the formation of clouds, the fall of rain, and the flow of rivers. It is everywhere the moving of solid, fluid, or vaporous matter. There is likewise no other manner in which directive intelligence may assert its will. By a series of motions, ores are mined, goods exchanged, and nutritious food transformed into bodily tissue. These motions are largely within the scope of familiar observation. By a series of motions somewhat farther removed, mountain ranges were thrown up, glaciers carried across the face of the continents, soils made

from disintegrating rocks, and animal and plant forms adapted to the various regions of the earth.

Since the physical forces upon which man is to rely act only upon matter, it becomes necessary to consider the appearance of the material world in and upon which they are to act. Of the earth's interior little is known, and even that little we may omit. Undoubtedly the interior is subject to the action of physical energy, and any radical changes in its condition might well be fatal to the existence of human society. Assuming its stability, however, we must regard all speculations concerning its condition as beyond our present field of study. We need consider only the earth's surface, including everything that is so near the surface as to be within reach of the miner and the dredger, and also including the atmosphere. The physical forces act uniformly wherever they are to be found throughout the world; but those elements of the environment upon the examination of which we are now entering are variously arranged in different regions. It would be difficult to find any two spots on the earth in

which the environments are identical; and the primary differences are geographical.

The natural home of man is upon the land. The entire expanse of land area is a little more than one-fourth of the earth's surface, or about one-half as great as that of the sea, if we leave out of account the frozen oceans of the polar regions. Of this land area, three-fourths is in the northern half of the globe, and grouped into two great land masses, known as the Old World and the New. The Old World, consisting of two distinct continents, of which Africa is one, and Europe and Asia the other, is more than twice as large as the New World of North and South America. Australia alone is entirely within the Southern Hemisphere. Asia is distinguished for her lofty plateaus, Europe for her mountains and indented coast-line, America for her plains and river systems.[1] The mountains of the Old World stretch from east to west; those of the New World, from north to south. The direction of the mountain ranges influences the direction of river courses, the distribution of moisture, the temperature, the

[1] Guyot, *The Earth and Man*, Chapters VIII. and IX.

character of the soils and of the crops, the movements of population, and the growth of industry. It is, therefore, a consideration of great importance. Yet, on the whole, the position of mountain ranges is of less importance in the economic environment than the relative elevation of plains and plateaus, and the width of river basins. Thus it often happens that features of the landscape which to the naturalist or artist are most striking, are of less interest to the student of human welfare than others that are less obvious. Another simple illustration of the same truth may be cited here, although it anticipates features of the enviroment upon which we have not yet touched. Every text-book of physical geography dwells upon the difference between the trees of different regions. No traveller can avoid noticing such differences, and they really are of some economic significance. But they are of far less importance than differences in the grasses. All the cereals, or grains, are cultivated grasses, and both the vegetable and animal food of man are consequently determined in large part by their character.

Of almost equal importance with the elements already noticed are climate, soil, mineral and vegetable products, and facilities for communication. A writer describes the provinces which border on the basin of the Mediterranean Sea as enjoying — in healthfulness and equability of climate, in fertility of soil, in variety of vegetable and mineral products, and in natural facilities for the transportation and distribution of exchangeable commodities — advantages which have not been possessed in any equal degree by any other territory of like extent in the Old World or the New.[1] The Roman Empire, which encircled the Mediterranean and extended its sway far into three continents, thus rested upon the finest physical basis ever possessed by any single political power. If, then, we analyze the terms in which this superior physical environment has been described, we shall be in possession of nearly all the remaining features of the environment that need statement.

By the climate is meant the character of

[1] George P. Marsh, *The Earth as Modified by Human Action*, p. 1.

the atmosphere as regards temperature and moisture. Climate is affected by altitude, distance from the equator, proximity to the sea, oceanic and atmospheric currents, the presence of great forests, and the situation with reference to mountain ranges, plateaus, and plains. The equatorial regions are hot and moist. Islands and lands bordering upon the sea have a more equable climate, milder in winter and cooler in summer, than lands of equal latitude situated far inland. Since land absorbs and gives off heat more rapidly than water, there is an unequal heating of the air which causes an alternation of land and sea breezes daily, and a similar movement on a larger scale in consequence of the changes of seasons.[1] These larger currents are of great economic significance. They raise or lower the temperature according as they come direct from the sea or from continental areas. They bring with them moisture or drought. They have been known to carry fine particles of soil, as dust, in sufficient quantities to alter materially the character of the soil upon which it is deposited.

[1] See any standard Physical Geography.

Clouds, whether brought by these currents of air or formed nearer at hand, modify the climate by screening the earth from the direct rays of the sun, and by preventing rapid radiation of the heat when the direct rays are withdrawn.

Ocean currents affect the climate of the regions near which they flow, causing, for example, the difference between the temperature of France and that of Labrador in equal latitudes, and giving to the British Islands and Norway, to Japan and Alaska, a much warmer and moister climate than is ordinarily to be found in lands so far from the equator. The oceanic currents arise from the unequal heating of water, as those of the atmosphere arise from the unequal heating of air. Among the minor but still important regulators of climate is the presence of forests and other vegetation. A very great quantity of water is given to the air by the leaves of trees and grasses, and the moisture of the climate is thus increased,[1] while the temperature is at

[1] Gaye, *The Great World's Farm*, Chapter IX.

the same time lowered by the using up of the heat in the process of evaporation.

The agencies that unite to produce climate are interwoven in such various ways that lines connecting places of equal temperature[1] are by no means parallel with the earth's equator. The extremes of temperature are crowded together much more closely in the Old World than in the New. In some parts of the Eastern Hemisphere differences are met with in a day's journey which are as great as those that the traveller would experience in going from Alaska to Mexico. In North America the general increase in elevation toward the south partly offsets the effect of the more vertical rays of the sun in the equatorial zone, thus accounting for the slower increase in temperature. When we say of a particular place in the temperate zone that it has a fine climate, we mean that it has a fair proportion of days in which there is bright sunshine; that its summer temperature is neither so high as to kill vegetation and to render the life of man insupportable, nor so low as to pre-

[1] These lines are called isotherms. They are shown upon the maps issued by the weather bureau.

vent the ripening of grains and fruit; that there is a liberal supply of moisture, sufficiently distributed throughout the year to avoid the dangers of drought and flood; that violent storms do not occur, or are infrequent; that there is sufficient moisture in the atmosphere in the form of clouds to serve as a screen from undue heat and cold, but not so much humidity as to increase the discomfort of summer; and, finally, that the atmosphere is not contaminated by foul vapors and disease germs.

Such a climate will be conducive to health and vigor, and if other conditions are equally favorable, it will give ample rewards for labor spent upon the cultivation of vegetable life. Its natural vegetation may be less luxuriant, but the conditions of economic life are on the whole more favorable than in the hotter and moister climate of a tropical zone. It is not at all essential that all of the conditions enumerated should be present in order to constitute a desirable economic environment. Man may succeed in his struggle for a living even where the climate is not equable, where the summers are intensely hot and the winters bitterly cold, where

the winds bring little moisture and there are no rains for months in succession. This is only to say that climate is but one element in the material environment, and that we must consider also its other features.

Among these none is of greater significance than the soil. In the present chapter it is the origin and composition of soils with which we are concerned. In a future chapter, on the making of goods, it will be pointed out that soils can be modified in character, and their useful qualities renewed as they are worn out. Soil consists mainly of clay, sand, and vegetable mould; or of a mixture from which one or more of these elements may be absent. A large number of other ingredients, such as iron, lime, and potash, although present in comparatively small quantities, are important because they are the very elements[1] that enter into the composition of plants. Clay is formed by the decomposition of feldspar, a mineral which also contains the chemical ingredients of potash and other valuable plant foods. Sand is the result of the decomposition of rock comparatively poor in

[1] The word is not here used in a chemical sense.

D

such elements.[1] Both of the two chief constituents of the soil thus have their origin in the breaking up of solid rock. The chief agents by which nature accomplishes the immense task of grinding huge masses of rock into sand and clay are water, the atmosphere, and the roots of plants.

Oxygen unites with iron to rust it, and carbon dioxide with lime, potash, and other substances, to form bicarbonates. Water aids in the crumbling process in two ways. It dissolves the cement which had held together the particles of the rock, performing this work with especial ease where it has taken up certain gases from the air, or in its passage through the earth. It enters the crevices of the rocks, and in freezing expands with irresistible force, breaking up any rocks into which it can gain entrance in frosty weather. Water aids in chemical decomposition by carrying the chemical agents of the air to places where the atmosphere does not otherwise circulate. Moreover, on exposed surfaces, moist-

[1] Most of the igneous rocks, such as granite and gneiss, contain both free quartz and feldspar, and their decomposition produces both sand and clay.

ure is a strong ally of oxygen and the other destructive agents. Vegetable growths coöperate with water and the chemical agents at every step. The seeds of tiny lichens attach themselves to the apparently smooth surface of lava, quartz, or other unbroken rocks. The acid of the roots enables them to eat into the rock until it is roughened, and the rootlets themselves are able to find their way into the openings. Later the effects of growing plants become more obvious. Roots swollen by moisture and in growth force apart pieces of rock which have first been separated by water or the corroding gases. The plants keep moist the rocks upon or near which they grow, and their leaves give off a continual supply of oxygen, which, in turn, acts upon the surrounding rocks. All these processes go on quietly but constantly. They have not only created the soil which we now possess, but they are continually contributing new soil to take the place of that which is washed into the ocean.

Water as we have seen is one of the most active agents in the making of soil, but its service does not end there. Few rocks would of

themselves yield a serviceable soil. In order that it may accomplish its purpose of furnishing the necessary conditions of plant growth, the decomposed rock must be thoroughly mixed. This again requires that parts of the soil should be carried long distances. Water is the great carrier and mixer of soils. Every mountain torrent brings down sand, mud, and silt from the weathered rocks of the mountains. In times of flood, when rivers are swollen beyond their banks, and the water sweeps over places not washed by the ordinary streams, tons of soil are carried down to the valleys and mingled with soils which had been brought by other tributaries of the same river. Soil is brought from the hillsides and mountain tops where it could not be utilized, to the more level valleys where cultivation is possible. Changes in the beds of rivers, and inundations occasioned by heavy rains, or by such causes as the dams of beavers, spread the soil over wide areas.

Glaciers are also efficient carriers and pulverizers. The rocks over which they pass, and which they carry at their sides and on their under surfaces, are reduced to soil and are

washed into the valleys when the glacier is finally transformed at the melting line into a muddy river.[1] Wind, to some extent, carries sand and dust, and so aids in the grand process of soil mixture which is finally completed by plants and earthworms and by the conscious efforts of man.

There is one element of the soil which, as its name indicates, does not come directly from the disintegration of rocks. This is the vegetable mould or humus. It is not, as was formerly supposed, the chief source of fertility, but it is nevertheless an important constituent. It is formed by the decay of organic matter, and is rich in nitrogen, which plants require for their growth, and which they are apparently unable to take from the air, or from any other source so readily as from the vegetable mould. No soil is naturally fertile unless it contains a certain amount of organic matter, and soils in which such matter is abundant are quite apt to be supplied with the other elements of plant food.

[1] It is an interesting fact that the soils of the states north of the Ohio and Missouri rivers are glacial.

Chemically, neither clay, nor sand, nor calcium contributes much, if anything, to plant growth; but they determine the physical character of the soil, and the productivity of land depends quite as much on its physical as on its chemical properties. The presence of clay tends to make the soil moist and tenacious, obstructing the circulation of air in the soil and rendering cultivation difficult. Sand, on the contrary, makes the soil dry, loose, and easy of cultivation.[1]

Only an extremely small portion of the cultivated soil is actually made use of as plant food. From soil of which one foot in depth will weigh three to four million pounds to the acre, an ordinary crop will take of plant food about two hundred pounds.[2] On the other hand, the portion thus utilized constitutes only about one per cent of the weight of the plant itself.[3] The rest has come from the air. The principal ele-

[1] v. d. Goltz in *Schönberg's Handbuch*, Vol. I., p. 29.

[2] *American Encyclopædia*, Art. Agricultural Chemistry.

[3] In the case of grass two per cent. Atwater, "The Food Supply of the Future," in November (1891) *Century Magazine*. In *Schönberg's Handbuch*, v. d. Goltz estimates it at from two to seven per cent.

ments of the soil suitable for plant food are: Iron, lime, magnesia, silica, sulphuric acid, potash, phosphoric acid, and nitrogen. In uncultivated lands these elements are returned to the soil by the decay of the plants which have taken them. When the products of the soil are removed, whether in the form of vegetables, fruit and grain, or in the form of animal flesh, certain of the elements become exhausted. Potash, phosphorus, and nitrogen are the elements that are likely to disappear in this manner. Methods are found of supplying phosphates and potash compounds, but the case of nitrogen has been more difficult. Plants do not ordinarily have the power of using nitrogen in its pure form, otherwise there would be no possibility of exhausting the abundant supply furnished by the free nitrogen of the atmosphere. Ammonia and nitric acid, both a result of the decay of organic matter, are the forms best suited for plant food. The former is a compound of nitrogen with hydrogen, and is always present in small quantities in the air. The latter, uniting with various minerals to form nitrates or mineral salts, furnishes the chief supply

that is obtained from the soil.[1] A special science, agricultural chemistry, is occupied largely with an investigation of the methods by which these necessary elements may be supplied, in order that the fertility of soils may be systematically restored or increased.

Next in order after climate and soil, belongs a consideration of the geographical configuration. The insular position of England has probably been a more important factor in determining the nature and development of her industry than either her soil or her climate, and in nearly all countries the geographical position has been of marked influence. We have already referred to the effects upon climate which may be traced to elevation and to position in relation to ocean and mountain ranges. Furthermore, the outline of the coast, the direction of navigable river courses, the presence of mountain passes, and, in general, all those features of the local geography which determine the difficulty or ease of communication and migration, are to be considered essen-

[1] The recent discovery of the bacteria called "nitrifying organisms" explains the method by which nitrogen is supplied to plants. Consult any recent work on bacteria.

tial features of the environment of any given region. North America is less fortunate than Europe in the character of her coast-line, since it is less indented, furnishing fewer harbors and bringing a smaller portion of the entire area into direct contact with the ocean, the highway to other continents. But this is fully compensated by the extraordinary opportunities provided for access to the interior by the great river systems, and by the absence of serious mountain barriers between the various parts of the continent.

Although the Alleghany Mountains were a temporary obstacle to the westward advance of the early colonists, the check was not more than sufficient to insure that the Atlantic slope should be fairly well occupied before population spread westward. Along the St. Lawrence and the Ohio, and up the course of the Mississippi, explorers and settlers pushed their way over natural water-routes, still utilized by their successors. The deep Hudson River[1]

[1] To those who are students of both geology and economics it is interesting that the Hudson is a partially "drowned" river and that it owes its commercial importance to a slight subsidence and submergence of the old river valley.

with the magnificent harbor at its mouth; the Delaware and Potomac with their broad estuaries; the rolling, unbroken prairies of the central states; the unique system of fresh-water lakes; the gradual rise of the entire continent toward the west, as if to encourage directly a rapid colonization by Europeans; the rivers and mountains extending from north to south, as if to insure the social and political unity which differences of climate and natural productions might otherwise render difficult, — all these geographical characteristics of the continent enter as determining elements into her economic environment. The commerce and industry of America, her art and letters, her politics and laws, her life and thought, will ultimately be influenced by her climate and soil and geographical contour.

Reference must be made, in closing this chapter, to the possession of what are known as mineral resources. In the popular mind the importance of these resources to national welfare is usually exaggerated, but it cannot be denied that their presence exercises a great influence upon the character of the national

industry, and they must therefore be reckoned as a part of the environment.

Iron ore deserves the first rank among the mineral resources of the earth, because of its wide distribution and its high place in the history of the arts. It is the most "useful" of the metals, if in assigning their relative rank we consider only the number of uses to which they may be put and the essential relation of such uses to the most primitive wants of man. Copper, tin, and lead are useful in the same sense of that word. Silver and gold possess qualities that have given them a unique relation to man's welfare from very early ages. Well adapted to many important industrial uses, they are also prized for purposes of personal adornment, and in later stages of social development they are found to be better suited than any other substances to serve as a medium for the exchange of goods.

The environment provides, besides the mineral deposits, the results of animal and vegetable life. Such things as are provided spontaneously in a form capable of satisfying man's wants, are to be regarded as products

of the environment rather than of man's economic activity. The most conspicuous example is coal, which, although a vegetable product of past ages, yet from an economic point of view resembles mineral deposits more closely than it does ordinary vegetable products.

It will be more convenient to regard the environment as providing in general only the forces and crude materials of industry, and to treat all vegetable and animal products, together with the utilization of mineral resources, in a later chapter.

## CHAPTER III

### THE SOCIAL CONDITIONS OF AN ECONOMIC SOCIETY

It was said at the opening of the preceding chapter that the environment is partly physical and partly social. Having outlined the physical environment, we may next consider the social conditions of our economic life.

Family life, education, religion, government, property, law, rebellion, riot, race antagonisms, and the desire for association, are less tangible than the features of the physical environment, but they are not less real or less important. Social institutions, and the social nature of man from which they grow, are fundamental facts of economics.

Association with one's kind is the beginning of social evolution. There is no society of any sort until individuals are able to compare experiences. There is no advance in economic activity until, as a result of association, men are able to compare the results of different actions

of the environment rather than of man's economic activity. The most conspicuous example is coal, which, although a vegetable product of past ages, yet from an economic point of view resembles mineral deposits more closely than it does ordinary vegetable products.

It will be more convenient to regard the environment as providing in general only the forces and crude materials of industry, and to treat all vegetable and animal products, together with the utilization of mineral resources, in a later chapter.

## CHAPTER III

### THE SOCIAL CONDITIONS OF AN ECONOMIC SOCIETY

It was said at the opening of the preceding chapter that the environment is partly physical and partly social. Having outlined the physical environment, we may next consider the social conditions of our economic life.

Family life, education, religion, government, property, law, rebellion, riot, race antagonisms, and the desire for association, are less tangible than the features of the physical environment, but they are not less real or less important. Social institutions, and the social nature of man from which they grow, are fundamental facts of economics.

Association with one's kind is the beginning of social evolution. There is no society of any sort until individuals are able to compare experiences. There is no advance in economic activity until, as a result of association, men are able to compare the results of different actions

with relation to the quantity and quality of the goods which those actions produce. Desire for association is itself one of the most powerful of the influences which determine man's actions. It furnishes the incentive to much of his industrial activity. It modifies the form of that activity at every stage.

When we speak of the desire for association as one of the influences which determine man's action, we do not refer exclusively to such desire for association as appears in well-developed society and finds expression in various kinds of social institutions. We include also those instinctive tendencies for association which characterize primitive man and gregarious animals in general.

Economic discussions, strictly speaking, take account only of those activities which result from conscious balancing of motives and rewards. But there are countless activities in which there is no such conscious act of judgment, but only an immediate reaction to some impulse springing from the physical environment or from man's mental mechanism.

We are at present considering these prelimi-

nary conditions of the economic order. It is impossible to form any just idea of the facts of man's economic life until we recognize clearly that this economic life is only a fragment of his complete existence. As a result of physical and spiritual forces, operating through many ages, man has become a creature with given instincts, desires, and capacities. Before we can understand what would happen under given economic conditions we must consider the nature of man as a whole, and form some estimate of the relative strength of the economic motive as compared with the social and physical influences to which he has been subjected. It is on this account that we preface our statement of economic principles with some account of the physical and social environment in the midst of which man's economic activity takes place.

Association might be made prominent in a list of economic motives strictly so called, but its present importance for us is more fundamental; for it is one of the first and most necessary social conditions of any such economic life as now exists upon the earth.

The Institution of the Family may be placed second among these social conditions. It is not necessary to enter upon an elaborate investigation of the form of the primitive family. What concerns us is not the order of social evolution, but the social conditions of our present economic life. Among these the family takes a very high rank. Examples of a society in which the family does not hold any such position are abundant. Primitive peoples even now exist in which the tribe rather than the family is the unit in the consumption of acquired wealth. The reward of the chase and the booty of conquest are shared, if not equally, at least with reference chiefly to the relation which the individual bears to the tribe. Where the guild and apprenticeship system prevailed, apprentices lived frequently with the master-workman. For many purposes the unit for the enjoyment and consumption of wealth then included a large number of persons. Now, however, in all countries of more advanced civilization the unit is the family. This fact is of the greatest significance in determining the character of the production of wealth. It

stands in the way of any industrial organization of society framed with the sole design of seeking the largest industrial product. Similarly in the political organization of ancient Sparta, designed to secure the highest military efficiency, it was necessary virtually to abandon the family organization. The family, on the other hand, furnishes a new motive to exertion, and, if steadiness of production be taken into account, a far stronger motive to efficient production than is supplied by the desire for mere personal welfare.

It has been recently held by eminent biologists that the doctrine of heredity, so far as it involves the transmission of acquired characteristics from parent to offspring, must be abandoned. If this position is generally accepted, it will bring into even greater prominence the family, and such other social institutions as are instrumental in passing on from one generation to another the accumulated results of civilization and human experience. It will require greater emphasis upon the educative influences surrounding the new-born infant, as the chief means of treasuring up and increasing the ca-

pacities of the race. Parental love, developed through the family, occupies the first place among these influences.

The mission of religion is to bring peace on earth, to strengthen the moral fibre, to aid man in his search for means of satisfying his spiritual needs. Religious association and activity exert an influence on man's character which affects his capacity for the highest efficiency in production. Few other social institutions have proven so powerful a stimulus to undertakings which require the coöperation of a large number of persons and a long interval of time for their completion. The truest economy regularly demands the sacrifice of temporary for permanent good, of immediate pleasure for a greater satisfaction in the future. The man of primitive instincts finds such sacrifice difficult, and if he were to depend purely upon the economic judgment of the moment the present sacrifice would too often outweigh the permanent gain. The sanctions of religion, and the vivid presentation of duty through the medium of religious instruction, prevail against these mistaken judgments, and train the mind to a more active realization

of the value of what is permanent, as against that which produces passing sensations of pleasure. It is precisely in this respect that there is found the greatest difference between the primitive instinct and the economic instinct. It is a mistake, though not an uncommon one, to credit the economic instinct with the disposition to place material satisfaction above those which spring from man's higher nature. The true economic instinct guards against just that tendency. It fixes the eye upon the future and highest want, rather than upon the lower and immediate want. Whether or not this instinct might have been developed without the religious influence, it is certain that religion and its agent, the church, have been preëminent among social agencies that have contributed to such development.

Some system of general education may likewise be assumed to be an indispensable social condition of a normal economic life. The ideal of education which society cherishes determines to what extent the conditions favorable to production shall be steadily developed and permanently insured. If there is a clear idea of the

extent to which scientific and thorough development of the powers of the future workers is essential to future enjoyment, there will be a more ready acquiescence in the sacrifice necessary to secure it. The tendencies favorable to a large and rational production of wealth may be consciously developed by society, and the result will be of permanent advantage to the race. The economic service of the public educational system is not even yet estimated at its true value, nor will it be until we instinctively attribute a portion of the value of all industrial products and professional services to the labors of the teachers who train the children, — including teachers of workshop, school, and home.

A society which looks upon all "legislative interference" as pernicious will have a different production, both in kind and degree, from a society in which the state is an active and significant factor in the industrial organization. While the state is an outside power, imposing its will upon subjects, it is of little economic significance save as it arbitrarily decides what goods shall be made and in what manner. But when through the democratic organization of

political society, action by the state has come to mean only one particular form of activity rather than another, all constraint being removed, it assumes an entirely new character. It comes to stand for collective as against isolated activity. The state, whether acting through its national organization or through any of the minor political organs (such as the municipality or that larger unit called in America the state government), becomes the most convenient and manageable mechanism for accomplishing a large number of industrial objects. It takes upon itself a large proportion of the industrial functions and becomes the medium through which society apportions the various phases of economic activity to its own agents, to corporate bodies, or to private persons. In this latter capacity the state is the logical though not necessarily the chronological antecedent of every economic activity. It is a social institution of an indispensable character.

Another institution which arises in very early stages of social development is that of property. The primary distinction between *mine* and *thine* lies at the root of so large a part of our eco-

nomic life, that it would be difficult for us without it to picture any sustained effort to increase the number and useful qualities of goods. It is an essential element in our present ideas of property that this distinction should be maintained by general consent, and by the official recognition of the state, rather than by individual force. What is recognized is the right of the one who is called the owner of the property, so far as its nature will permit, to have the sole use and control of it. He may transfer this right to another with or without a consideration. He may do with it what he will, so that he do not trespass upon recognized rights of other persons.

A distinction between private and public (or collective) property becomes sharply drawn in the course of the development of free enterprise. The great mass of wealth becomes the private property of individuals. The title, however, is not an absolute one, but is limited by the rights of the public to a share for public purposes, and by any considerations of public interest which the state may see fit to prescribe.

Taxation, the process by which the right of the state to a regular share in the proceeds of

industry is realized, may be looked upon as one of the conditions of the social environment. Taxation is not, in the long run, a deduction from income, but an investment. A canal is built in order that the industrial product may be increased; and the necessary taxation is a preliminary investment. Short-sighted critics of public enterprises of this sort often find fault because the moderate fees usually charged do not yield on their face a good return upon the investment, entirely losing sight of the increase of fees that would be necessary to pay satisfactory returns under private management. The Post Office furnishes a good illustration. If the Post Office department reports a deficit, there is at once an outcry at the failure of the government, whereas the real test is whether the public has received a due return for its total investment, which is to be ascertained by adding the amount of the deficit to be raised by taxes to the amount realized by the sale of stamps. The years in which there has resulted a surplus are by no means necessarily to be considered the years of best management.

Taxation is thus the initial stage in a particu-

lar method of carrying on industry. But in order that that method may be effective it is necessary that a comprehensive system of taxation should be established, that there should be a ready acquiescence in the imposition of various kinds of taxation, that taxation should fall less upon individuals than upon the individual proceeds of the national industry, that the system of taxation should be uniform and stable, so that industry may adapt itself to it as it does to any obstacle in the physical environment. It is in this way only that inequality in the treatment of individuals can be avoided, and an equitable and useful system of taxation maintained. Attention has been concentrated upon the effort to find an equitable system of taxation. This is no doubt desirable, but it is still more desirable to find one which is economically useful. Until such a system is reached, the taxation which exists in any society cannot be intelligently reckoned with as a normal feature of the social environment. When it has once been realized, taxation may be utilized for social ends as readily as any other social institution.

Credit is so fundamental a condition of eco-

nomic society that our whole system of economic activity is sometimes said to rest upon it; — and this is not far from the truth. Confidence of the members of society in their political government permits the use of money as a tool of exchange. Confidence in each other permits them to make many exchanges without the intervention of money. When such exchanges are between two persons directly they are called barter, and if neither party postpones payment no credit is involved. If, however, either party does postpone payment, or if, as more frequently happens, the exchanges are indirect, involving three or more parties with a lapse of time between the transactions, then credit becomes an important element. Where there is mutual confidence in the business integrity of those who are brought into such relations, the making and the exchange of goods may assume a form with essentially different characteristics from those of the primitive industry which prevails where it is absent.

The final principle which need be enumerated among the features of the social environment, is that of social organization. From the sim-

plest gathering for informal discussion[1] to the elaborate organization of municipal enterprise, foreign missions, or fraternal orders, the capacity of society for effective organization appears constantly as a condition of its economic progress. The most important movements for definite organization often lie entirely outside the field marked out by the state for its own activity, and they are thus dependent upon the voluntary coöperation of their adherents. Such movements as that for the organization of charity illustrate the importance of the general principle, while the disposition in some places to entrust the entire supervision of public and private charity to public officials is an instance of the easy transition from individual to collective action.

All the various social conditions of economic activity, like the various features of the physical world, are interdependent, and they constitute not a series of conditions to be reckoned with individually, but a definite *environment*, within which society must carry on its economic life, to

[1] Invariably resulting, it is said, in America, in the election of a presiding officer and a secretary.

which that life must be made to conform, from which it will draw materials for the changes, whether moderate or radical, of the future. Many features of this environment will vanish, one by one, as newer and more adequate conditions appear. Organization is dependent upon association and credit. The state is dependent upon property and taxation. Education rests upon the family, the church, and the state. Industry is influenced by all social agencies. To the economic man the social environment is as real and as significant as his physical surroundings. The two are never sharply distinguished, but blend into an economic environment with both physical and social features.

# CHAPTER IV

## THE MAKING OF GOODS

In the present chapter we pass from a consideration of man's surroundings to that of his activities. Broadly speaking, all human activity may be described as the increasing of the number, or the improving of the useful qualities, of goods. Every object which ministers to a human desire is a good, in the economic sense. There are many such things in nature, and in primitive stages of civilization these free goods are accepted as adequate satisfaction of the desires of men, with little attempt to increase their number or to improve their useful qualities. But as man becomes more at home in his environment, he discovers that increase and improvement are possible.

Fruit and nuts, and the flesh and skin of animals, are easily appropriated, and this appropriation is among the earliest steps in the making of goods. It must be understood that the mak-

ing of goods does not involve the creation of the material substance of the commodities. In that sense no goods are made by the persons to whom they are attributed. What is done is to give to the commodity a form which especially fits it to supply some want, and, after patient observation of the natural processes involved in producing the materials from which the new commodity has been made, to modify those processes in such a way as to increase the quantity of available materials.

No sooner is it clearly understood that certain things have the power of satisfying continually recurring wants, than it becomes apparent that it would be desirable to secure a regularly recurring supply of those things. The objects which are consciously or instinctively aimed at in the making of goods are: the increase in the number of commodities of which the utility is recognized, increased regularity in the supply of those commodities, increase in the utility (or want-satisfying power) of commodities. In accomplishing the third object, combinations of materials are made which result in commodities entirely unlike any objects found in nature, but

nevertheless capable of satisfying entirely natural wants. Houses are constructed which serve the purpose of shelter better than the caves of the hillsides or the tents of skins. Food is made from cultivated grains which supplements the fruits, nuts, and flesh of animals, and is a physiological gain. Even the chase is made more effective by the invention of firearms. The substitution of goods that are made for goods that are found, is a characteristic of economic progress, the goal of which is to place man in a position to bring together, where he will, the elementary materials of production, in order that his residence may be determined by social or æsthetic considerations and not, as in earlier stages, by stern physical necessities. Men may build their homes, for example, on beautiful sites, and are not restricted to unpleasant spots selected because there are springs near by, or because there are woods to break the force of the wind.

Two great movements are in progress contemporaneously, from the moment when this making of goods begins: viz., the adaptation of man's activity to his environment, and the

gradual modification of that environment itself, — or as it has recently been expressed[1] — the creation of a new environment within and from the materials of the old. When the growth is complete, the new will cast off the shell of the old, but will give place later to still newer surroundings. In illustration of the first of these two movements, the adaptation of man's activity to his environment, attention may be called to certain peculiarities in the operation of the physical forces enumerated in the preceding chapter. Some of these forces are periodic in action, others are localized, in such a manner that they are available only at certain places on the earth's surface. There is always present, for example, a certain amount of light and heat, but the direct rays of the sun are periodic, day alternating with night and the heat of summer with the lower temperature of winter.

This periodic action of natural forces has an important influence upon economic activity, since the forces must be utilized at the time when they are active. The succession of seasons dictates the times of sowing, cultivating,

[1] Patten, *The Theory of Social Forces.*

and harvest, in agriculture, of the cessation of the shipping of the colder regions because of the freezing over of rivers, of activity in the building trades and in many other industries.

Location is an element of no less importance. Coal, machinery, and muscular force may be taken with ever-lessening difficulty to the places where they are needed; but a waterfall, a harbor, and fertile soils must be utilized where they are found. The adaptation of economic activity to environment requires the discovery of the peculiar advantages of each region and the planting of those industries in each for which it is best fitted. That this process is by no means complete is excellently illustrated by the luxuriant growth of weeds sometimes noticed in roads alongside cultivated fields in which, with great labor, man has induced only a scanty growth of grain. This comparative failure of man may be caused by a lack of proper methods of cultivation or fertilization, but it is often due to a mere blunder in deciding what crops to plant in the fields in question. The growth of weeds attests the fertility of the soil. The scantiness of the crop is equally good evidence

that there is no adequate adaptation of plant and cultivation to natural conditions.

It is true that some of the limitations of locality are removed in the course of human progress. The waterfall remains where nature has placed it, but its energy is transformed into electricity and carried a long distance. The soil of a large area is too bulky for removal by man, but it is changed radically by the addition of new constituents. These considerations modify, but they do not destroy, the effect of the principle that industry must adapt itself to the localization of natural forces. Other things being equal, there is economy in utilizing the forces of nature at the places where they are found or where they are most easily controlled, just as there is economy in utilizing them at the time when they are in the most available form or when they are most active.

A third characteristic of the natural forces is, that, in order to secure satisfactory results, it is necessary that they be set in motion in a particular order, that the exact series of motions which will produce the desired result be discovered, and that the series be sufficiently extended

to permit the most efficient action of the requisite forces. In modern industry the series of motions involved in securing even a simple result is often extended and complicated. If we desire to purchase a book, it is a simple matter to make the exchange and secure possession of it. But the series of actions which the purchase presupposes is well-nigh infinite. The existence of the retail and wholesale book stores through which the book has come, the printing establishment, the work of the author, his preparation and all the antecedent forces that have induced him to write, the conditions that have made a demand for the particular book, — these are only a few of the most obvious members of the series. A complete analysis would trace back the various steps in the growth of each of the contributing industries. What is to be noticed is, that it is this infinite complexity which secures the simple and ready result. If any steps in the series were omitted, the difficulty of securing the result which we now desire would be vastly increased.

If we can imagine a society in which the members attempt to satisfy their desires di-

rectly without the intervention of complex serial processes, the advantages of the present system will become clear. The man who desired a book in such a society would be under the necessity of preparing it. But there would be the work of a lifetime in preparing the materials, if, indeed, it were not all spent in attempting to understand the difficulties of even this preliminary task. The principle is, that there is economy in far-sighted direction of the natural forces, which secures their action, in a part of the series, long in advance of the time when the given result is expected. This serial action of the forces of nature is one of those primary conditions of the economic environment which, like the periodic action of certain forces and the localization of others, rank among the premises of economic study.

A fourth condition worthy of attention is that, for a period which can be calculated with some degree of accuracy, products retain the form given them. Ultimately all material forms change. Vegetable and animal bodies die and decay, rocks disintegrate, the products of human labor are consumed or perish; but

they offer greater or less resistance to change and disintegration, and this fact is of prime importance in all economic life. The discovery of methods by which greater permanence can be secured when desired, is one of the greatest economic services. A long step forward is taken when man substitutes for the perishable food of the savage, food which can be preserved for months, though a still more important step is taken when, through improvements of communication, man is rendered independent of the necessity for such preservation of food, by the certainty that constant supplies will be forthcoming from all quarters of the globe.

In the preceding paragraphs illustrations have already been given of the second great movement in economic progress, viz., that gradual modification of man's surroundings, which, when it passes critical stages, may be described as the creation of a new environment from the materials of the old. Man does not escape from his environment by these changes, but he renders it richer in the possibilities of goods. Industry must become adapted to the new environment as, formerly, to the old, under

penalties which are greater rather than less; but the advantages of such adaptation are also greater. Irrigation, modification of soils by the addition of essential elements of plant food, and the planting of forests, are obvious illustrations of the changes made by man in the physical aspects of nature. Changes in the character of vegetation and in the breeds of animals, brought about by conscious effort, are essentially similar.

A change of environment has sometimes been secured by a bodily migration to new regions of the earth. Under the new conditions, faculties hitherto latent are developed and, since some communication is usually retained with those left behind, the environment is virtually enlarged to include the best features of both the old and the new regions. The discovery of appliances by which new forces, as steam or electricity, may be applied to the making of goods, enlarges and improves the environment, by vastly increasing the number and variety of goods which result from a given expenditure of energy. The development of the factory industries, at the opening of the present century, modified the environment of English economic activity more

than it would have been modified by a diversion of the Gulf Stream or the drying up of the Thames. The universal introduction of steel, within the past fifty years, into railway and steamship construction, into office buildings, bridges, and other public works, and the extension of its use in industrial and agricultural machinery, has transformed the present environment beyond calculation.

These changes require corresponding changes in man's activity, and the prosperity of any community is determined chiefly by the promptness with which its industry is modified to suit the new possibilities of the modified environment. It would be too much to say that the environment is determined by the new element which rises to so great prominence, for all the previous features, both physical and social, must still be taken into account; but the revolution resulting in the first illustration from the use of steam, and in the second from the use of steel, makes the environment essentially new and different and requires a readjustment of the entire set of economic activities. The making of goods in one generation may demand different

qualities from those of another, and the power to compete successfully in the great struggle for existence may depend upon the ability to secure the necessary readjustment promptly. A lack of such ability, whether physical, economic, or social, may mean serious diminution of welfare, or even, for special classes, entire destruction.

The initial factor in the making of goods is the possibility of utilizing the results of plant growth. The cultivation of plants may therefore be regarded as the beginning of industry. The flesh of animals used for food may be regarded merely as grain and grass in a more convenient form. Timber and cabinet wood, flax fibre, resins and rubber, perfumes, oils, and medicines from the vegetable kingdom, in so far as they are not already objects of regular cultivation like cereals, will probably become so, as industry is more highly developed. The vegetation of the sea yields fish, as that on the land yields bread and meat, and under cultivation might be made to yield a very considerable part of the necessary food supply.[1] Already the cul-

[1] Atwater, "The Food Supply of the Future," in November (1891) *Century Magazine*.

tivation of oysters in favorable coast regions has become a considerable industry, and the various fish commissions are taking measures to stock the inland rivers and lakes with suitable varieties of fish.

The extractive industries, of which the cultivation of plants is an illustration, are supplemented by the carrying and manufacturing industries. We must avoid the vulgar error of supposing that the extractive industries, such as farming and mining, are in any preëminent degree productive. Merely because they are the first step in the process of securing control of the goods which the environment is able to provide, it does not follow that this is an essentially different step from those that follow. It would be no less absurd to give to the water which is engaged in disintegrating the rock of the hills preëminence over that which nature uses, in carrying the soil into the valleys and in mixing its various ingredients. The making of goods is the name for the entire series of activities by which man secures from his surroundings the satisfaction which his nature demands.

# CHAPTER V

## THE CONSUMPTION OF GOODS

It is not until we reach that part of economics which treats of the consumption, or use, of goods that we come into direct contact with the central fact of the science, viz., the relation between the economic environment and man's welfare. If we can imagine a complete cessation of all economic activity for an instant, with man left in possession of the goods already created, and if those goods are supposed to be in sufficient quantities to satisfy all possible human desires for a brief period, as for one day, there will then be removed one of the chief limitations upon consumption, at least for that day, viz., the labor involved in the making of the goods. Are there any other limitations that would remain?

Each consumer would find that the quantity of any given article which he could use would be limited, first, by the feeling of satiety that

would follow its uninterrupted consumption; secondly, by the time at his disposal if he is to derive any benefit from other goods; thirdly, by the fact that its consumption may be incompatible in kind with other pleasures from different sources; and, finally, in the case of some commodities, by the pain and inconvenience involved in the act of consumption. If all these limitations could be successively removed, as that of cost is removed in the supposed case, we should finally have a consumer who would not need to consider the quantity of goods at his disposal, for there would always be sufficient to supply his wants; nor the relative pleasure to be derived from different sources, for there would be time for all; nor the harmony to be established by judicious choice and grouping of goods, for no one would be discordant or incompatible with the others; nor the effect upon welfare, for the consumption would not be accompanied by inconvenience or evil consequences; nor, finally, the cost of goods, for they are supposed to be supplied without exertion. Such a consumer would not only have at his command infinite resources,

but would be freed from all present limitations upon their utilization in the satisfaction of wants.

The case supposed indicates the manifold character of the relation between man and goods. It may be said vaguely that all human beings desire all good things, and that if no cost were attached to them every one would enjoy them in unlimited degree. But besides the limitation of cost, and the others which have been enumerated and which spring from the very nature of consumption, the statement as made requires further limitation. It presupposes complete knowledge of the infinite variety of satisfactions which the environment is capable of yielding, and of the steps necessary to secure them. It assumes knowledge of the best combinations to be made among want-satisfying commodities, knowledge of the order in which they should be consumed to derive the maximum of pleasure, and the possession of a nature capable of enjoying the higher pleasures without sacrifice of the lower.

From these considerations it appears that we must undertake an independent survey of

consumption and learn something of its principles. It will not answer to take it for granted that good things are desired, and to confine our inquiries to the processes by which they are brought into being. We must inquire what things are desired, in what order, in what relative degree, and with what effect upon human welfare. We must inquire how people come to attach more importance to some goods than to others, and more to certain quantities of any given article than to additional quantities; why the order in which goods are estimated is different at one time from the order which prevails earlier or later; and why this order is sometimes subject to violent fluctuations. Finally we must inquire, whether social progress is attained primarily by a modification in the character and order of man's wants, or by a modification in the character and intensity of his activities, or by an admixture of the two.

In our preliminary view of the making of goods we have had to do entirely with forces, physical and social. Wealth is produced by the operation of physical forces on material substances. These forces are under man's

control, and it has therefore been necessary to consider the social conditions of economic activity, as well as the physical conditions upon which it is based. In the study of consumption we have to do with utilities. A utility, in its concrete sense, is that which satisfies a desire. A good, or commodity, is the material substance in which a utility or a group of utilities is embodied. We are therefore viewing in a different way the same goods into the making of which we have already had glimpses.

The making of goods would be described with perfect accuracy as the creation of utilities. Although in industry no matter is created, matter which was without the power of satisfying desire is put into such form, or removed to such place, as to endow it with that power, or, in other words, to create utilities which did not before exist. Consumption is the destruction of utilities in such a manner that the satisfaction which the commodity was able to produce is actually experienced. The test of consumption is the degree of satisfaction obtained. It is obviously an error to look upon the creation of new utilities as a

test of consumption, and to condemn all consumption from which there does not emerge a greater number of utilities than is destroyed. A destruction of utilities from which new utilities emerge, is, strictly, not consumption at all, but one form of production. The shoemaker, it is said, consumes leather in the production of shoes. But the utility embodied in the leather has disappeared in the one form only to reappear in another. It has not been destroyed. No want has yet been satisfied. Something very different takes place when the shoes are worn out. Here the utilities are destroyed. The desire, whether it be for ornament or for protection, has been satisfied. Nothing else than this should be called consumption, unless some qualifying word is added to indicate the meaning.

We may use the term "productive consumption" to designate the transformation of utilities from one substance to another, when no desires are satisfied in the process.

Waste is a destruction of utilities from which there is obtained neither new utilities nor the intended satisfaction. Nearly all con-

sumption involves some measure of waste, and, though to a less extent, the productive process too is accompanied by waste. A failure to create the greatest number of utilities with a given expenditure of energy, must be regarded as waste, and consequently those forms of consumption which allow existing productive agencies to be utilized most fully must be regarded as least wasteful. It goes without saying that it lies in the interests of all to reduce to a minimum the waste in each of these directions. The most urgent need of all is for greater economy in consumption, as will appear more fully in subsequent pages.

Production and consumption together cover the whole field of man's economic activity. The consumption of wealth[1] is uniformly accompanied by the sensation of pleasure. The degree of pleasure varies directly with the utility of the commodity. The utility is indeed only an expression of the possible satis-

[1] Wealth is a collective term including all kinds of commodities. Anything which possesses positive utility, as defined in the next paragraph, is wealth. See opening paragraph of Chapter I.

faction to be derived from the commodity. There is no necessary or direct connection between the effort involved in the production of the commodity and its utility. The two may, however, be directly compared, for production always involves some degree of pain[1] or subjective cost, which is a sensation directly opposed to the pleasure obtained from consumption. The whole science of economics rests upon the possibility of thus comparing pains, or subjective costs of production, with pleasures obtained as a result of economic activity.

In investigating the facts concerning consumption we shall early find some among them that cannot readily be reconciled with the simple conception of utility above set forth: viz., that utility is the power of satisfying desire directly, and that consumption is

[1] "Pain" is the word commonly used as the name of the sensation opposed to pleasure, though there are objections to its use, because of its association with disease or other abnormal physical conditions. Subjective cost has the same meaning. The word "cost" alone is used in this sense by Cairnes and other writers. As so used the word "cost" must not be confused with money costs. It means the actual dis-utility experienced in production.

uniformly accompanied by the sensation of pleasure. It will be found that certain commodities are consumed in order to preserve life or to restore health, though they confer no immediate pleasure. Others will be consumed because they are essential to some pleasure to be obtained from a future consumption. It may be that the commodities, first consumed, which are in rank subordinate and secondary, confer pain rather than pleasure. In estimating the pleasure from the second commodity, the one chiefly concerned, it is necessary to make a deduction for the dis-utility of the first, before a just estimate of the entire consumption is possible.

Any commodity which is essential to life may be said to possess absolute utility. This kind of utility cannot be economically measured. Any commodity which is consumed only because of its absolute utility, or because its consumption is required for the sake of some other pleasure, may be said to have negative utility, or dis-utility. Commodities which are consumed for the pleasure which they confer, on the other hand, have positive

utility. An article which has absolute utility may possess also positive utility, as is the case usually with food; or it may be neutral, so that no economic account need be taken of it, — as with air; or it may have dis-utility of which, again, account must be taken as a deduction from the pleasure enjoyed from consumption. This would be true, for instance, of torn or ill-fitting garments which we were compelled to wear in the absence of suitable clothing, or of the consumption of disagreeable medicine.[1]

It should be pointed out that utility must often pass through several steps before it reaches the desire to which it corresponds.[2] The leather of which shoes are to be made

[1] Absolute utility is the satisfaction of mere living. Positive utilities refer not to life, but to the content of life; they are the sum of satisfaction that can be added to bare living. Negative utilities are the pains that detract from the pleasure of living. A man may have the absolute utility of life, yet he may suffer all kinds of pain and be on the point of suicide. Every life contains the absolute utility of living plus certain positive utilities or pleasures, minus certain negative utilities or pains. — Patten, *Dynamic Economics*, p. 40.

[2] A fertilizer is useful to enrich a meadow; the meadow is useful to produce hay; hay is useful to feed horses; and horses

possesses a mediate or indirect, though it is clearly a positive, utility. The desire for protection for the feet cannot be met until a further act of production, the transformation of the leather into shoes, has taken place. The satisfaction of the desire involves a long industrial process which is partially completed when the leather is produced. In the strict sense no utility has yet been produced; but for convenience in rewarding the efforts of producers the industrial process is divided into distinct operations, and at the end of each a utility is said to have been created. A utility is attributed to the unfinished product, derived from the anticipated utility of the commodity into the production of which it is to enter. It will be less than the utility of that commodity, because time must elapse and further productive effort be expended before its transformation is complete.[1]

But all commodities find their ultimate goal

are useful to do service. From the fertilizer to the man are several steps, but it is the final step which makes all the others count. — Gregory, *Political Economy*.

[1] Compare the distinction made in Chapter XIII. between future and present goods. From the study of consumption all consideration of future goods is excluded, since it is only present

in ministering to human wants. The whole material environment is a vast aggregate of useful things, the power of which to yield positive utility grows steadily greater. The natural forces remain constant, but man's control over them increases with invention and social progress. Every new capacity for enjoyment finds existing the necessary physical conditions to provide for it. Because man's industry is not adapted to those conditions, and because the pleasures are not selected in the order indicated by the economic conditions, the possible utilities are not realized, and the pain involved in securing those which are realized remains disproportionately intense. To society as a whole the environment is capable of yielding utilities infinite in number and of infinite variety. The limitations actually experienced are to be traced to subjective causes.

The individual is restricted in his choice of utilities by the expense which he must undergo to secure them and by the amount of time at

goods that can be consumed. Future goods may, of course, be "productively consumed," or they may be destroyed through waste.

his disposal for their enjoyment. Certain commodities are absolutely excluded by reason of their cost. From those which remain he chooses first that one which yields the largest surplus of utility over the cost involved in securing it, and then other commodities in the order of the surplus utility which they yield. This is the true economic order of consumption. It differs from the natural order, by which is meant the order in which commodities would be chosen, if they were entirely free. Those commodities which have a large surplus of utility over cost would be chosen, in the economic order, before others with a higher total utility but lower cost.

If we consider the various single commodities chosen as made up of a succession of increments, each corresponding to the same unit of expenditure, we shall find that those increments are not possessed of uniform utility. The first increment of any commodity will have a maximum utility. The succeeding increments will steadily diminish in utility until, when the desire for the commodity in question is entirely satisfied, an increment is reached of which the utility is zero. Long before this point is

reached, however, a second commodity will have been chosen, the first increment of which has a utility perhaps nearly as great as the highest increment of the first commodity. The succeeding increments of this second commodity diminish in utility as did those of the first. This experience is repeated with a third and fourth commodity, in each case the utility of the highest increment ranging between the highest and the lowest increment of the next preceding commodity, tending generally to approach the higher. In some instances it may even be quite as great, since the pleasure afforded by the first increment of two commodities may balance, and it might thus become a matter of indifference which should be chosen first.

This law of diminishing utility may be expressed arithmetically by the erection of a scale of diminishing utilities. The various commodities are represented by the letters A, B, C, D, etc., in the order in which they are chosen by the consumer. If the first increment A yields a utility of ten units, its succeeding increments may be represented as diminishing uniformly in utility until of the eleventh or final incre-

ment the utility is zero. The first increment of B yields, it may be, but eights units; the first increment of C, six units; and the first increment of D, three units. If we assume for convenience that there are only these four commodities from which to choose, the various increments, each designated by the number expressing its utility, may be arranged as follows in the order in which they are chosen 10 A, 9 A, 8 A, 8 B, 7 A, 7 B, 6 A, 6 B, 6 C, 5 A, 5 B, 5 C, 4 A, 4 B, 4 C, 3 A, 3 B, 3 C, 3 D, 2 A, 2 B, 2 C, 2 D, 1 A, 1 B, 1 C, 1 D. This is the so-called scale of diminishing utilities. It is generally arranged in the following form:

| A | B | C | D |
|---|---|---|---|
| 10 | | | |
| 9 | | | |
| 8 | 8 | | |
| 7 | 7 | | |
| 6 | 6 | 6 | |
| 5 | 5 | 5 | |
| 4 | 4 | 4 | |
| 3 | 3 | 3 | 3 |
| 2 | 2 | 2 | 2 |
| 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 |

The numbers arranged under the letters which designate the commodities represent the succeeding increments of those commodities. Three increments of A (10, 9, and 8) will be desired before any of the others. Five increments of A and three of B will be consumed before any of C or D, and so on. If each increment represents what can be secured by one hour's labor, and A stands for food, B for clothing, C for shelter, and D for ornament, the scale would express the following facts: that two hours' labor would be devoted to the production (or securing possession) of food before any other commodity could be considered. That the third hour would produce an equal utility whether devoted to clothing or food, so that half of it would probably be given to each. That it would be only after six hours' labor, of which four had been given to food and two to clothing, that sufficient pleasure could be derived from shelter to furnish an inducement to devote a portion of the time to the task of securing shelter. The corresponding numbers in the different columns represent different utilities, equal in amount and equally

difficult of acquisition. If each separate desire could be completely satisfied, it would be found that ten increments of A, eight of B, six of C, and three of D had been consumed.

The idea of utility, developed at length in the preceding paragraphs, has been introduced into recent economic discussions as a basis for the theory of value. In a later chapter on the subject of value the relations between value and utility will be examined, but there are first to be made other and more fundamental applications of the conception of utility within the field of consumption.[1] The study of consumption, like that of production, is wholly independent of considerations drawn from the theory of value. But consumption is vitally dependent on utilities. When the available utilities are increased, consumption is improved;

[1] One of the first things the student of economics learns is that the end of economic action is the creation of "utilities." . . . But unfortunately for the student, he is, as a rule, no sooner introduced to this lofty conception than he is hurried past it by the necessity of measuring the results of economic action. Without much warning, the wide word "utility" is put aside in favor of the word "value." . . . All the while the last word in political economy is not value, but utility. — William Smart, in *Annals of the American Academy*, Vol. III., p. 257.

when they are lessened, consumption suffers. If, with comparatively little effort, society finds itself able to satisfy very completely all its lower as well as its higher desires, the economic statement of that fact is that there is a large surplus of utilities over costs. It is immaterial to society as a whole whether these utilities have "values" or not. If they are produced with so much ease and in so great quantities that they become free goods, they do not on that account contribute less to the comfort and happiness of man. The theory of consumption, therefore, entirely disregards alike "market" and "normal" and even "subjective" values, concerning itself with an investigation of the pleasure-giving entities which we call utilities.

This distinction is one which should be clearly seen. No commodity can have a value unless it can be appropriated. But many goods which are not appropriated have great utility. In the theory of value it is of prime importance that the commodities be fitted for ownership, that the ownership be transferable from one person to another. But the theory of consumption and of prosperity and of progress

must take account of goods not thus suited to private or even public ownership. Free goods, non-appropriated goods, are consumed, and they must be taken account of when a general estimate of the prosperity of a community is to be formed.

The true starting-point in the construction of any complete theory of economics lies in consumption rather than in production. Pleasures and pains, rather than physical forces, are the initial and fundamental economic facts. Wants precede satisfactions. The study of human wants, not merely in the abstract manner so common in theories of morals, but in the concrete manner made possible by the introduction of economic measurements, may be carried on independently of and prior to the study of the productive agencies. This order of development is not only possible, it is the more logical and fruitful. The one who looks upon every step forward in social progress as a "development of new activities giving rise to new wants,"[1] who sees the obstacles to progress mainly in certain physi-

[1] Marshall, *Principles of Economics*, Vol. I., p. 147, 2d ed.

cal hindrances to the development of industrial activity, will, if he construct a theory of progress and of economics, base it upon different premises and formulate it in different terms from those employed by the economist who holds that the environment which men find "depends upon their mental characteristics," [1] who looks upon every step forward primarily as a modification of men's desires and ideals, who insists that economic activity at any particular point will always be determined by the ideals to which man has already attained, the initial step in further development being an advance in man's ideals, a modification of the psychical conditions of wealth production which have their origin in the prevailing consumption. The results of progress from this latter standpoint will be sought mainly in man himself, in the development, for example, of new tastes which allow a fuller exploitation of the natural resources. All social progress and activity may thus be viewed from the industrial standpoint of production or from the economic standpoint of consumption.

[1] Patten, *Dynamic Economics*, p. 38.

# CHAPTER VI

## PROPOSITIONS CONCERNING CONSUMPTION

*The economic order of consumption is modified by changes in the relative cost of producing different commodities.* It has been pointed out in the preceding chapter that commodities are chosen not in the order of their positive utility, but in the order of their surplus of utility over cost. Any modifications in the productive processes, therefore, which affect the costs of producing certain commodities more than the cost of producing others, since they affect the surplus of utility, must modify the economic order. This modification is independent of any changes in the positive utility of the commodities. The construction of a railroad will cheapen the production of a multitude of commodities, but will affect those produced at greater distances more than those produced near at hand. If it affected all alike, it could not modify consumption. It does not

increase the utility of the commodities produced at a distance, but it increases their relative surplus by lowering their relative cost. If for any reason costs are increased, but not uniformly, a similar modification takes place. Taxation never affects the cost of all commodities alike. It therefore influences consumption, leaving the surplus larger on certain commodities than on others. The immediate effect of such modifications may be an increase or a decrease in the variety of consumption. A cold climate adds to the cost of producing all kinds of food which are to be met with in tropical climates. But it increases the cost of securing fruit more than that of producing meat. In the warm climate there is a much greater surplus in fruit than in meat. The colder climate diminishes the surplus in each case by increasing the cost, but diminishes the meat surplus less than it does the fruit surplus. Under these circumstances it will be easier to increase the variety of consumption, since there will be almost or quite as much inducement to produce the one as the other.[1]

[1] Patten, *Consumption of Wealth*, p. 47.

*The economic order of consumption is modified by changes in appetites.* Progress from primitive to advanced stages involves a decrease in the intensity of the appetite for food, and particularly for the few varieties of food and drink which are so eagerly desired by human beings on a low plane of civilization. The first reason for the greater intensity of appetite under primitive condition is the irregularity of the food supply. The appetite must be stronger, the capacity for food greater, when periods of scarcity succeed those of plenty. When food is regularly supplied, the need for the more intense appetite disappears. The few articles of which the diet of primitive man is composed contain necessarily all the food elements essential to the system; but while rich in some of these elements, they are poor in others. An increase of variety, if it adds to the diet articles which contain larger proportions of those elements which are present in the earlier articles only in small quantities, will result in a further decrease of appetite. If one eats only meat, it is necessary to consume larger quantities in order to get a sufficient amount of starch and

other elements demanded by the system; but if corn and potatoes are added to the diet, the needs of the system for these particular elements are much more quickly supplied, fewer pounds of food need to be taken when the diet is thus varied, and the appetite is correspondingly reduced.

Improvements in shelter and in clothing lessen materially the demand of the system for food, as a source of animal heat, the effect of which may be seen in the decrease of appetite; and finally the tendency is still further strengthened by the introduction of machinery and mechanical devices which relieve the system of the muscular strain involved in heavy manual labor.[1] A reduction of appetite for food has followed each of these changes, but it has shown itself much more with some commodities than with others. A measure of disgust becomes associated with the thought of eating the very kinds of food

[1] Professor Marshall speaks of the effects of machinery in relieving that "excessive muscular strain which a few generations ago was the common lot of more than half the workingmen even in such a country as England."

that once gave, and if the older conditions were restored would again give, the keenest pleasure. These changes in appetite modify the economic order of consumption by acting not on the cost, but on the utility. Cost may remain the same, but surplus utility is reduced because total utility is reduced. Since the utility is not reduced on other commodities as it is on food, and since it is not uniformly reduced on all kinds of food, the order in which commodities are desired is changed. The economic order of consumption is therefore modified by any changes in appetite.

*Increase in variety modifies the economic order of consumption by lessening the negative utilities.* As the consumption becomes more varied, and the appetite for the few commodities less intense, greater harmony is introduced into the consumption, and the relative number of commodities which yield positive utility is greatly increased. Under primitive conditions those commodities which have absolute utility, or life-sustaining power, must be preferred to those which, if the cost were not too high, would be chosen on account of

the pleasure which they are capable of giving; but all the productive energies must be concentrated upon the absolute utilities. The absolute utilities are chosen of necessity, even though they are also negative rather than positive utilities. It is gradually discovered, however, that for these negative utilities others may be substituted which are both absolute and positive utilities. Food is discovered which is capable of both yielding pleasure and sustaining life. Articles of furniture are invented which please by their appearance and serve the same purposes as the cruder and clumsier furniture first invented. Dress becomes beautiful and comfortable as well as fitted to protect from heat and cold. Those commodities which are neutral or negative as to their utility are displaced continually in a progressive society by others which have absolute utility, as did the first, but positive utility as well. This gradual elimination of negative and neutral utilities is one of the chief modifications to be observed in the economic order of consumption.

*The pleasure derived from the consumption of a given number of commodities is increased when combinations of complementary goods are formed.* It is possible that two commodities, both possessing positive utility, may, when consumed together, enter into such relation with each other as to yield a utility greater than the sum of the separate utilities. Sugar and fruit eaten together form such a complement, since the one renders the other palatable, while neither, perhaps, would be eaten if they could not be eaten together. A saddle has positive utility only when there is a horse with which it can be used. The utility of the whole complement is a positive quantity which cannot be ascertained by adding the separate utilities of the separate commodities of which it is composed. The utility of a picture may be very greatly increased by changing its relation to other objects in the same room. The utility of a group, which is necessary to the satisfaction of a given desire, may be continually modified by substituting for some one element in it another commodity which has of itself no greater

utility, but which harmonizes better with the other elements of the group. If commodities are consumed in a haphazard way, without regard to their relations to each other, a large part of their possible utility is lost. If the consumer fails to grasp new opportunities to substitute for the inharmonious elements others which would as well answer the individual needs in question, and at the same time fit more harmoniously into the general consumption, he is compelled to retain in his consumption the cruder and more primitive groups of commodities, and thereby sacrifices a pleasure which could have been obtained without additional effort or cost. Normal economic consumption is distinguished from primitive consumption more by this difference than by any other.

*Pleasure is lessened by the forced combination of discordant utilities.* Progress lies in the direction of forming the kind of groups indicated in the preceding paragraph. The natural group is not that which happens first to have been formed by primitive beings, but the one in which the elements unite with the least loss

of utility. Unnatural and discordant groups are formed because of ignorance of the relations between them, or because, from habit, the old commodities are retained long after the time when, by a change in the methods of production or in the conditions of life, there has been made possible a new and better combination.

It can be scientifically demonstrated that the consumption of highly flavored food, or rich pastry, or tobacco, is highly incompatible with the greatest pleasure from a healthful and nutritious diet; but this fact, if popularly known, is at least not realized with sufficient vividness to control the actions of even the majority of persons. Forced and discordant combinations are made which are injurious to the system, and which not only lessen possible pleasure, but often produce much suffering. Possible positive utility is thus transformed by unwise consumption into negative utility. Artists are able to point out innumerable popular errors in the combinations of colors which are made in dress and in house ornamentation, yet, because of the popular ignorance on these mat-

ters, inharmonious combinations are retained, and the possible pleasure is not realized. Taste for good literature is destroyed by the perusal of trashy stories. In other words, the two kinds of literature are not complementary, but discordant. On the other hand, a perusal of good fiction or of poetry may increase the pleasure which the reader subsequently obtains from the study of history, and may not be incompatible with the study of scientific treatises. The whole complement literature yields a pleasure which may be regarded as a unit. The utility of the commodity literature will be less if the elements which compose it are discordant, and will be greater in proportion as they form a harmonious complement.

*The economic order of consumption is modified by the mental act by which the increase of utility is imputed, i.e., attributed to the various elements which compose the group.* The pleasure from a complement of commodities is a unit, but the complement itself is complex. Each of the commodities will be recognized to have contributed at least that amount of utility which it would have had if consumed in isolation; but

after all the commodities have had that amount assigned them, there will remain all the increase of utility which results from the formation of the complement. This increase is not, as might at first be expected, distributed evenly or in proportion to the original utility of the commodities. On the contrary, there is always a tendency to concentrate the whole of the increase on that one element or on the limited number of elements which have been last added to the complement, and which are therefore looked upon as having completed it, and thus added to the utility of all the other members of the group. At a dinner, for instance, the agreeable result of the meal as a whole is apt to be attributed to some new or favorite dish, the absence of which, though the dish has of itself no great utility, would spoil the entire meal. In an academic course the student is always inclined to account for the benefit which he knows that he has received from the course, by referring to the instruction of a favorite teacher. At a concert the listener will attribute to some special performance the pleasure afforded by the entire programme. This act

of imputation is a mental act. The principle, in accordance with which the utilities of certain commodities are increased, because of their relation to other commodities in the group of which they form a part, is a psychological principle. Commodities are desired in a different order because the utility of certain commodities is thus increased. The economic order of consumption is modified, therefore, by the imputation of utility.

*The final increments of the different commodities consumed tend to rise and fall together.* Attention has already been called to the fact that commodities are consumed in a certain order, and that the successive increments of each commodity satisfy wants of steadily diminishing intensity. By the final increment of any commodity is meant the last increment actually consumed. By the marginal increment of consumption is meant the final increment of the last commodity added to the consumption. It might be supposed that this marginal increment would satisfy a much lower desire than the final increments of the commodities which have precedence in the economic order. If it were a

question of the initial increments of each commodity instead of the final increments, there would be such a difference. But the final increment of this last commodity has as great, or nearly as great, utility as the final increments of any of the preceding commodities. The differences in the pleasure obtained from different commodities are to be found, not in their final, but in their earlier increments. At the point where the consumption is broken off they have about equal power of conferring pleasure; otherwise the consumer would transfer a portion of his expenditure from the commodity which gave less pleasure, to one which gave more. In this way a more intense want for the first commodity would be left as the final want, and a less intense want for the second commodity would be satisfied. For instance, food to the starving, shelter to the homeless, crowd out all other thoughts; but, with a dollar to spare, a man may hesitate whether to indulge in a joint of beef, to have a broken window-pane set, or to buy *Lorna Doone* and read it to his family. It might happen that radical changes in the desires of a consumer would leave his consumption tem-

porarily in the condition indicated by the following scale:

| A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 9 | | | | | | 9 | |
| 8 | | 8 | 8 | | | | | 8 | 8 | |
| 7 | 7 | 7 | 7 | 7 | 7 | | | 7 | 7 | 7 |
| 6 | 6 | 6 | | 6 | 6 | 6 | | 6 | 6 | 6 |
| 5 | 5 | | | 5 | 5 | 5 | 5 | 5 | 5 | |
| 4 | | | | | | | 4 | | | |
| | | | | | | | 3 | | | |
| | | | | | | | 2 | | | |

The final increment of the larger number of commodities is 5. But there are three commodities, say newspapers, woollen clothing, and rocking chairs (C, D, and K), of which the final increments remain 6, 7, and 6, respectively; while two other commodities, say house accommodation and table silver (A and H), satisfy their respective wants so fully that their final increments fall in utility to 4 and 2. This unbalanced condition cannot long remain. The more intelligent the consumption, the more quickly will normal conditions be restored. A slight reduction in house rent, and a considerable retrenchment in the expenditure for table silver will allow a daily newspaper to take the place

of a weekly; will allow a more adequate supply of woollen clothing, and the purchase of an additional rocking chair. This readjustment of consumption to the conditions brought about by the growth in intensity of certain desires, as compared with others, is continually in progress. Its tendency is to cause the final increments of all commodities to satisfy wants of equal intensity; in other words, to cause the final increments of all commodities to have equal degrees of utility.

*The margin of consumption is fixed by the relation between man and his environment.* From the preceding discussion it will be seen that the margin of consumption may be regarded as a straight line, or one continually tending to become straight, and forming the boundary line of actual consumption. In the illustration above given, after readjustment is complete, the margin is a straight horizontal line passing below the final increments of the commodities. The margin may be indicated by the omission of the numbers below it, as in the preceding illustration, or by the drawing of a line, as in the following illustration:

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 9 | 9 | | | | | | 9 | | | | | | | | |
| 8 | | 8 | 8 | | | | | 8 | 8 | | | | | | | | |
| 7 | 7 | 7 | 7 | 7 | 7 | | | 7 | 7 | 7 | | | | | | | |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | | 6 | 6 | 6 | | | | | | | |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | | | | | | | |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | 4 | |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | | 3 | |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

All commodities have a definite relation to this line, their successive increments ranging either partly above and partly below or entirely below it. Of commodities which begin with a very high degree of utility, a considerable number of increments will be found above the margin, *i.e.*, a considerable quantity of the commodity is consumed; of others but few increments are above the margin; while still others, and always vastly the greater number of commodities, are, for the man of moderate means, entirely below the margin. They may be conceived as arranged in a particular way below the margin, waiting, as it were, until the margin falls far enough to include them, and

certain to make their appearance at that time in accordance with a definite order, the economic order of consumption.[1] What is the reason for the changes in the position of this line, for the rise or fall in the margin of consumption? The broadest answer is that it is fixed by the relation existing at the given time between man and his environment; and for our present purposes this answer is sufficiently accurate. Man's power over nature is indicated by his ability to utilize more efficiently the natural resources in the satisfaction of his desires. As this power increases, the margin of consumption falls. With each step in industrial progress, wants of less and less intensity are satisfied. If we disregard changes in human wants,[2] a fall in the margin of consumption will be regarded as an indication of progress. After each increase in the variety, and

[1] This order is of course not fixed in the sense that it is incapable of modification. The object of this entire chapter is to show that it is continually changing, but in accordance with principles which may be investigated and clearly established.

[2] An important condition. The modification of conclusion necessary on taking account of changes in wants will receive careful attention in the next chapter.

especially after the addition of any more intense want, there will be a renewed effort to satisfy the whole range of wants even more completely than before. The margin falls in exact correspondence with the success of that effort. The margin of consumption is therefore fixed by the relation between man and his environment.

*The law of progress, so far as it affects the consumption of the individual, is that the marginal increment of consumption satisfies at each period a want of greater intensity than at the preceding period.* There are two opposite tendencies: one toward the improvement of the mechanical processes of production springing from industrial progress; and one toward the development of new wants springing from social progress. The latter tendency determines the extent to which positive utility will be found to reside in commodities which had before been regarded as neutral or negative, and the extent to which the positive utilities of other commodities will be increased relatively to their cost. In a progressive society this latter tendency will prevail over the other in determining the actual position of the margin

of consumption. Although the margin might fall because of the fact that with a given amount of energy given wants are more fully satisfied, it is prevented from doing so by the growth of new wants and by changes in the relative intensity of wants that had previously existed. Commodities that had been entirely below the margin are brought above it by the discovery of new uses to which they may be applied. The work of the last hour of the laborer's day satisfies a want of greater intensity than it previously did because of these changes in desires. If wants had not changed, that hour would satisfy a less intense want than it formerly did, because, each of the previous hours of the day having become more productive, all the more intense wants would have been already satisfied before that hour had been reached. Temporarily the margin may fall immediately after great changes in the productive processes, but eventually, if there is social as well as industrial progress, the margin will rise, the law of progress being that the marginal increment satisfies continually a higher or more intense want.

## CHAPTER VII

### SOCIAL PROSPERITY

THE prosperity of society is measured by the surplus utility which it can create in a given time. It is important that it be understood just what is meant by surplus as the term is here used. It is the designation of all that part of utility which remains after the costs of producers have been made good. It is, perhaps, easiest to see that the manufacturer, or the farmer, or the miner has left, after meeting all his expenses of production, a surplus product. Assuming that the manufacturer himself engages actively in the production as manager of the industry and as capitalist, it may be true that he does not have a surplus on every increment of capital which he invests, or on every hour during which he labors. If we admit that the fatigue of the labor which extends far into the night is so great that the return only enables the manufacturer to regain his former

position, there is at least for the earlier hours an equal or a greater return, and there is therefore a surplus on the labor of those hours, increasing in amount toward the earlier hours of the day. His capital may be arranged likewise in a series of increments, each after the first bringing in a smaller return than the increment preceding it.[1] Then even if we admit that there is just an even return on the last increment invested, there is still an increasing surplus on the preceding increments as we approach the investment which is most productive.

The total surplus on manufactured goods does not appear, however, in the profits of the manufacturer. This total surplus is made up in part of items which enter into the manufacturer's expenses. If he furnishes a part of the capital and is part owner of the land used by the industry, he is at one and the same time manufacturer, capitalist, laborer, and landlord, and in each capacity adds something to the total surplus. But those parts of the surplus

[1] Clark, "Distribution as Determined by a Law of Rent," in *Quarterly Journal of Economics* for January, 1892.

contributed by the capital, labor, and land of other persons appear on the manufacturer's accounts as items of expense. It is precisely the same to the manufacturer, so far as the particular transaction is concerned, whether the wages paid out by him are needed by the laborer to reimburse actual labor costs, or whether they are partly surplus enjoyed by the laborer. Thus, the surplus incomes enjoyed by the capitalist who loans to the manufacturer, by the landlord who rents his land, by the laborer who works for wages, are all properly counted as expenses of manufacture, but they are not costs to society. Before we can determine the social cost of a given quantity of commodities, we must trace back through the complex processes of production the actual productive exertions of the different classes of producers, disregarding the expenses of him whom we call the manufacturer, because those expenses are made up of many items which may or may not be costs; but, on the other hand, counting his costs, and those of all other producers.

We thus ascertain one of the two elements

necessary to a correct estimate of national prosperity. Over against this cost we are to place the other element, the total utility of the commodities produced. The difference between these is the social surplus, or the real measure of prosperity. It is a mistake to suppose that this social surplus can be increased only by methods which increase both costs and utilities, or that there is an invariable relation between the increase of utilities and the increase of costs. At any given time, in a given stage of progress, there may be such a relation, but it is modified by many causes which are continuously in action. Every such cause that modifies the relation favorably, enabling greater utility to be produced at the same cost, or the same utility at a less cost, increases the social surplus. Among such causes may be named the discoveries which place the natural forces more completely at the disposal of society, the accumulated results of past civilization, inherited capital and knowledge, and inherited industrial qualities.[1] The fact that there has been such a change in the relation of cost to

[1] Patten, *Dynamic Economics*, p. 51.

utility has been frequently obscured by the unequal distribution of the newly created utilities. Leaving aside for the present all consideration of how the wealth at the disposal of society is distributed, it is apparent that the social utilities are vastly increased by causes which do not involve any increase of costs, but rather tend to lessen them.

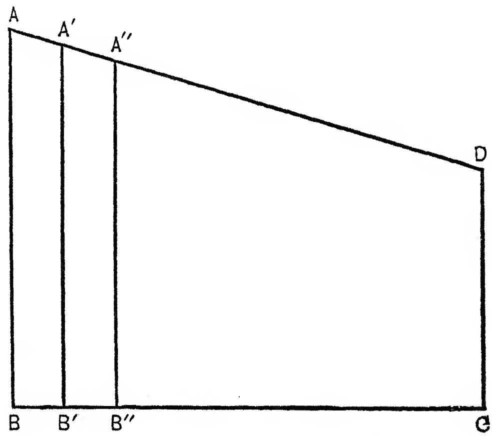


FIG. I.

Figure I. represents the social utilities, the total number of pleasure-giving commodities at the disposal of society at any given time. It may be regarded as made up of an indefinite

number of parallel vertical lines like $AB$, $A'B'$, $A''B''$, . . . $DC$, diminishing in length toward the right. This figure corresponds to the scale of diminishing utilities of Chapter V.,[1] and the commodity $AB$ may be assumed to have ten units, and $DC$ eight units, all other commodities ranging between these limits. It will be noticed that the number of commodities is measured by the length of the line $BC$, the intensity of the pleasure conferred by the length of the vertical lines. As additional commodities are consumed, $BC$ is lengthened, and new vertical lines, shorter than $DC$, are erected. The scale previously given represented the consumption of an individual consumer, while this figure represents social consumption. In both instances commodities are arranged in the order of their surplus of utility over the expense to the consumer of securing possession of them.

Figure II. represents the social costs of producing the commodities represented in Figure I. The line $BC$ is identical in the two figures, standing in each case for quantity. The vertical lines $FB$, $F'B'$, . . . $EC$ show the cost of

[1] P. 87.

producing the different commodities. They do not show the expense to consumers, but the actual costs, the pains of production. In each figure the vertical lines represent the impressions made on the feelings of human beings,—in Figure I., the feeling of pleasure from consumption; in Figure II., the feeling of pain from production. The vertical lines of Figure

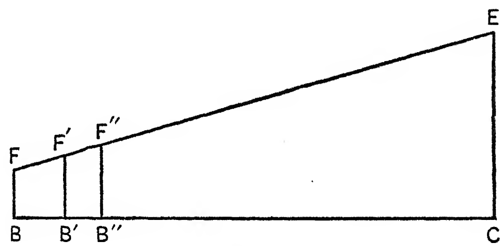


Fig. II.

II. increase in length toward the right, because the producer's cost steadily increases as a larger number of commodities are produced in a given time. Taking the day as the unit, it is sufficiently evident that the pains of production steadily increase as the length of the day is prolonged. The goods first produced by society have the greatest utility, they have also the least cost. The first few hours of labor in the

day may have scarcely any actual cost to the producer, the fifth hour becomes burdensome; by the eighth hour, all the more intense wants being satisfied, and the fatigue becoming great, the producer doubts whether further labor will be of any advantage; and by the ninth hour, that which can be produced having comparatively little utility and entailing heavy cost, production for the day ceases.

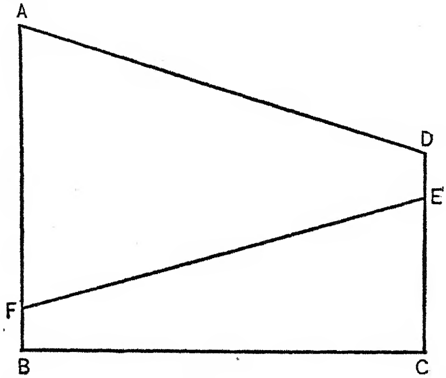


FIG. III.

When these figures are combined as in Figure III., the resulting surplus is clearly shown. Even the earliest utilities are represented as having a certain cost, *FB*, though in exceptional cases that cost might disappear, in which

cases *F* would coincide with *B*; and even the latest utilities are represented as having a certain surplus, *DE*, though this also might disappear, in which case *E* would coincide with *D*. Now, the prosperity of society is indicated by the size of the area *AFED*. Prosperity is increased by anything which increases this area. Errors would probably be made if it were attempted to extend the vertical lines shown in Figure I. through the cost area of Figure III. The particular commodity of which the cost is *FB* might not have a surplus *AF*; but the line *BC* of Figure III., like the corresponding lines of the preceding figures, does represent all commodities, the whole area *ABCD* does represent their utility, and that part of this area which is below the slanting line *FE* represents their cost. The object of the discussion on which we are entering will be better understood if the relations expressed by these areas are kept constantly in mind. Prosperity is increased either by increasing the area of the quadrilateral *AC*, or by lessening that part of it which makes up the quadrilateral *FC*.

The theory of prosperity then requires an

examination of the various means by which the social surplus is increased. Those means relate either to the increase of utilities or to the reduction of costs. So far as they relate to the increase of utilities they may be classed as follows: increase in variety of consumption; substitution of positive utilities for such absolute utilities as had been negative or neutral; socializing of consumption; coöperation of consumers to secure greater pleasure; the formation of harmonious complements; and such modifications of consumption as shall permit the utilization of new resources. The following examples will be noticed of the means by which social surplus may be increased so far as this can be done by a diminution of costs: division of labor; territorial division of labor; organization of industry; improvements in transportation; increase of capital; increase in the productivity of land; changes in the distribution of population; invention; hereditary transmission of industrial qualities; education and industrial training; growth of moral qualities.

First among the means of increasing the utilities which society may obtain from the envi-

ronment with a given expenditure of effort is the increase in variety of consumption which naturally follows the reduction of the appetite for particular commodities. This tendency has already received attention in connection with individual consumption. But there is a social gain which is greater than the gains to individual consumers. When there is no diversity of consumption, and but few commodities are desired, all consumers necessarily demand the same things. But when diversity begins, all consumers do not modify their consumption in exactly the same way. The growth of new wants prevents the utilities from diminishing with the former rapidity, and when different consumers develop dissimilar wants, a commodity may satisfy a high want for one class of consumers, though it is capable of satisfying only a low want for other consumers, or it may have for them no utility whatever. Commodities are brought above the margin of consumption because new uses are found for them, or because the wants which they are calculated to satisfy increase in intensity. The surplus on other commodities is increased by the same

process, and the entire social surplus is thus enlarged.

The consumption of the individual is improved, as we have seen, by the substitution of commodities which confer positive pleasure, — while they at the same time prevent suffering or preserve life, — for those commodities which could perform only the latter function. This substitution goes on in society with great rapidity because of the interchange of experiences. Since consumers have many qualities in common, the union of consumers in society gives additional intensity to this force which is operating to increase surplus utility. Practically, almost every important discovery becomes, soon after it is made, the common property of all civilized men, and the social process of eliminating absolute but negative utilities becomes thus one of the most obvious methods by which the social surplus is increased.

The socializing of consumption[1] is a term applied to the process by which those forms of consumption are extended, which include other

[1] An excellent expression suggested by Professor Smart, in *Annals of American Academy*, November, 1892, p. 34.

persons than the original consumer in the benefit conferred. A Christmas dinner is given, for instance, to which many guests are invited. It must be assumed that the host derives from the meal a pleasure sufficient to compensate him for all the expenses incurred. It is even probable that, like other commodities, the dinner gives him a surplus of utility. In estimating the gain to society we must take into account not only this surplus to the host, but also the utilities enjoyed without expense by the guests. The Christmas dinner is typical of a large and increasing class of pleasures. A costly work of art may, if consumption be sufficiently socialized, give pleasure to thousands beside the owner. Thoreau "owned" all the desirable farms near Concord, because he could not be prevented from getting that kind of enjoyment from them which he most highly prized. Perhaps the widest scope for socialized consumption lies in the enjoyment of natural scenery, since it is difficult for the owner, even if he desires, to exclude others entirely from the view of a mountain, a lake, or a wood. To a very great extent, however, even this has been done, and

there is no loss to society more indefensible and unjust than that which comes from exclusive consumption of those commodities that are calculated to give pleasure to large numbers of people. Society may directly increase its surplus, without increasing the quantity of material commodities, by all those changes which make consumption social rather than exclusive.

Somewhat different from the foregoing is the tendency of consumers to choose those forms of wealth which are possible only when the social instincts are sufficiently developed to permit the union of many persons in a common pleasure. For many, the family is the only recognized social unit for purposes of consumption. It is fully realized that within the family the common enjoyment increases rather than decreases the pleasure-giving power of the commodities. That which from one standpoint might be looked upon merely as a disagreeable necessity, becomes, with the development of the love of family and kindred, a source of enjoyment. Under the tribal system the social unit for consumption is a much larger one, and even under the guild system the unit commonly included,

together with the master's family, a number of journeymen and apprentices. It is doubtful whether there has not been a social loss by the economic changes which have accompanied the breaking up of these larger units and the introduction of the present system, in which the prevailing unit is the small family, and, if unmarried, the individual consumer. But in highly developed society a new tendency is seen to be operating toward the forming of social units for the consumption, not so much of the necessaries, as of the comforts and luxuries of life. The school, the university, the church, the theatre, the railway, and the public highway are regarded, by some whose primitive instincts are strong, as an unavoidable evil, only to be submitted to as substitutes for private drives, family tutors, privately engaged musicians, etc., because the latter pleasures are put beyond reach by their expense. That this is not the universal view, however, is apparent from the preference shown for the coöperative forms of consumption by many who are above considerations of expense. The boy who is to be the future German emperor is taught, like any German youth, in the

public gymnasium and in the University of Bonn. The wealthiest man does not refuse the public service for the transportation of his letters. He has his box in the public opera and his pew in the public church.

These two tendencies toward the socializing of consumption, *i.e.*, the increase of those forms of consumption that involve some benefit to others than the one who selects and pays for the commodity; and coöperation in consumption, *i.e.*, the increase of those forms of consumption that rest upon the willingness of man to coöperate with others in a common expenditure, — are tendencies which mark the more advanced stages of social progress. It should be pointed out that but very little consumption belongs as yet in either of these two classes. Individual instances, like those cited, are not rare, but the greater part of our consumption is unfortunately selfish, exclusive, and unsocial. The loss to society from this source is very great; or, to state the same fact in the more hopeful way, the possibilities of increasing the social surplus, and hence the general prosperity, from this source, are very great.

If it be true that the individual consumer may greatly increase the utility of the commodities which he consumes by such combinations as produce harmonious effects, there is here a further means by which the social surplus may be increased. The special field covered by the application of this principle to social surplus is the large field of socially consumed commodities, — not merely the streets, sidewalks, street-cars, railways, hotels, theatres, etc., but also such commodities as the newspaper, the lecture, and the gas and water supply, the common peculiarity of all being that they are desired by a large number of people at about the same time and in about the same form. The formation of complements among these commodities is no less marked than in individual consumption. To the increase of the social surplus in this way must be added the increase of utility secured by the individual consumer from the complements which he forms. The increase of prosperity from wiser and more economical consumption has in many directions greater possibilities than have yet been recognized, and many of these lie within

the scope of this principle: that the utility of a group may be enhanced by such change in its composition as shall displace discord by harmony, and produce a more perfect synthesis.

Many of the modifications of consumption which are pronounced by the economist to be desirable changes are so because the direct effect of the changes upon the feelings is such as to produce greater sensations of pleasure. More intense wants are satisfied with a given effort after the change than it was possible to satisfy before. Other changes in consumption are deemed desirable, not because they produce such direct effect, but because of peculiar conditions attached to the productive resources or agencies. The social surplus may be increased by such modifications of consumption as permit a fuller utilization of resources already somewhat drawn upon, and the utilization of new resources. This principle, though not of greater significance in the long run than the principles already developed, is of even greater immediate importance for the American economist, since there are here enormous resources which remain undeveloped, not because there is a lack of

labor or capital to develop them, but because demand is not of such a character as to warrant the new product being brought to the markets. The woollen cloth with rough finish which recently became popular for business and even for professional suits, is made from the longer and somewhat coarser wool which can be produced in this country. It is no less durable and no less attractive, when people have become accustomed to its appearance, than the smoother finish of the woollens which were formerly exclusively worn. The increased consumption of this less expensive cloth becomes therefore a good example of the creation of utilities by simple changes in consumption. When those changes are far-reaching and affect a whole country they may increase materially the social surplus. The extent to which the general well-being may be increased by economies of consumption is seldom realized more vividly than by those who observe closely the changes in consumption in periods of general depression. Changes in consumption become the means of preventing much positive hardship. Commodities are made to "go farther," that is to say,

their utilities are increased. But if similar economies were practised in more prosperous times, the social surplus would be permanently increased. All changes which act upon general well-being by making commodities "go farther" than they previously did, act upon the social surplus by increasing the total utilities of the commodities produced.

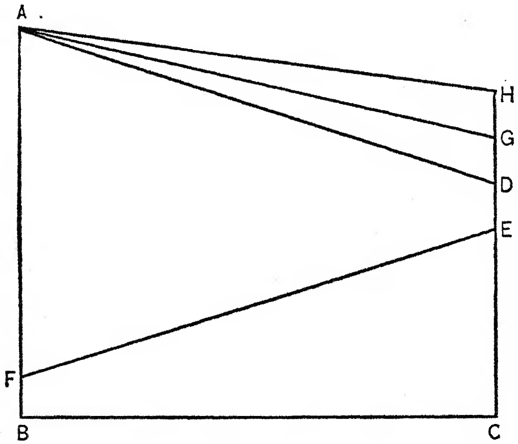


FIG. IV.

An increase of the social surplus in any of the ways already described is indicated by the modifications of Figure III. shown in Figure IV. Starting with the conditions as they exist at the

beginning of the working day, the area *ABCD* may be increased by anything which increases the utility of the commodities consumed. The cost line retains its position, but utilities, instead of diminishing rapidly from *AB* to *DC*, remain more nearly equal, the marginal commodity rising on the first improvement in consumption from *DC* to *GC*, and later to *HC*. The surplus utility of the last commodity increases from *DE* to *GE*, and then to *HE*. The effect of this increase of the surplus, though the fact is not shown in Figure IV., would undoubtedly be to extend the line *BC*. That is, the increased surplus would become an increased incentive to production, and more commodities would be produced. The gain, therefore, from improvements of the kind which have been noted is not fully shown when only the increased surplus on the commodities consumed is pointed out. The relative surplus on the additional commodities produced would not be greater, because costs would continue to increase, but the absolute surplus would be thereby increased.

But this surplus area may be increased in the manner indicated in Figure V. Total utilities

remain unchanged, but costs are reduced. Anything which checks the tendency toward the increase of costs operates as directly on the increase of the surplus as do the forces which check the tendency toward diminishing the utilities. Beginning with conditions repre-

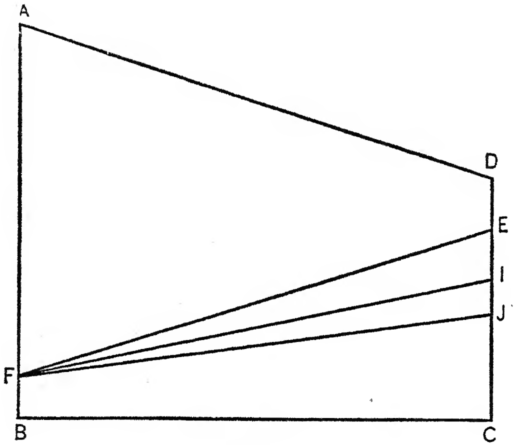


FIG. V.

sented by the area *FBCE*, identical with the area described by the same letters in Figures II., III., and IV., the cost line can be forced down by improvements in the productive processes to *FI*, and finally to *FJ*. By each of these changes the area representing surplus

utilities is increased. The surplus on the last commodity produced grows greater and is represented by the distances, *DE*, *DI*, and *DJ*, at the different stages. These changes would also have an effect upon the number of commodities produced. The increased incentives introduced by the reduction of costs lead to further production, and the line *BC* is extended. The limit of extension for this line is the place at which the cost line and the utility line would intersect. *D* and *E* may coincide, but the line *EC* cannot be of greater length than the line *DC*. That is to say, a commodity will not be produced if its utility is not at least equal to its cost.

It is not necessary to discuss in detail all the various forces which operate to increase social surplus by reducing costs, because, though they logically demand attention at this place, some of them are sufficiently well known to be regarded as commonplace. They are nevertheless of sufficient importance to require brief mention. Most prominent among these various phases of industrial progress is the extension of the principle of the division of labor. This is preëmi-

nently a principle which springs from social relations. The chief advantage of the division of labor is that each producer may devote himself to the particular tasks for which he is fitted by nature and training. Since under the division of labor one does not consume the products of his own labor, but exchanges those products for the commodities which he desires, he may disregard his consumption when deciding to what occupation he shall devote himself. So much would follow upon a mere division of trades, by which is meant the separation of producers into those who produce farm products, those who produce shoes, those who produce clothing, etc., etc.

There is, however, a further division of employments within these separate branches of industry. In a large manufacturing establishment the different processes in the production of a commodity are, under a more minute division of labor, assigned to different classes of workmen. No one produces an entire commodity which he can exchange for the commodities needed for his own consumption, but each receives certain raw materials or certain partly

finished commodities, performs on them certain operations for which he is especially trained, and passes them on to another producer who does likewise. In a stove factory, for instance, one man must spend his time in grinding the "edges" used in ornamentation. The work is monotonous, yet, compared with other occupations, the work of edge-grinder demands considerable skill and offers considerable variety of bodily exercise. Industrially, a division of labor as minute as the market for the product will permit is a gain — offset at times, however, by physical injury to the individual worker. Greater skill, precision, and speed are gained when the number of operations which the laborer is compelled to learn is made as small as possible. Work is distributed in accordance with the endowments of the laborer, and the acquirement of a high degree of skill is made possible. By the extension of the division of labor the social cost of producing a given quantity of commodities is reduced.

The territorial division of labor is advantageous, but it rests upon a somewhat different basis. Each part of the earth is better suited

to the production of some commodities than to the production of others, and if in each district attention is paid to the peculiar qualities of that district, and there is corresponding increase of exchange, the total cost of producing the commodities desired will be lower than if it is attempted to produce commodities where the natural conditions are unfavorable. Every judicious extension of the territorial division of labor, whether between countries or between different sections of the same country, tends to reduce costs.

By the organization of industry is meant not merely the separation of producers into trades and into minute portions of trades, but, further, the bringing together of the various productive agencies in such a way that they become really operative and efficient. It is the name applied to a series of positive actions. A farmer, by years of saving, succeeds in getting control of a certain amount of capital, or he borrows from some one who has saved it the capital he needs; selects a farm suitable to the crop which he expects to raise, and within reach of his market; he employs the necessary laborers, he purchases

the necessary implements, he chooses the seed that is to be planted, he directs how much labor shall be put on each field, how many times the corn shall be ploughed, what fences shall be built, when the crop shall be harvested, where it shall be offered for sale, — in a word, he organizes industry. With the extension of the division of employments the organization becomes more complex, but the division and the organization are not identical. The organization may be very highly developed in industries which, from their nature, do not allow a minute division of labor, and the organization may be very weak at certain points, though a thorough division of labor has been introduced. Those improvements in the organization of industry which prevent misapplications of capital or energy materially reduce the costs of production. As the organization of industry becomes more intricate it becomes at times more sensitive, and a reduction of costs may often be secured by such changes in the forms of organization as shall secure more perfect insurance against loss.

Improvements in transportation lower costs by permitting an extension of the territorial

division of labor, by permitting laborers to get easier access to new productive resources, and in other obvious ways. Few other mechanical discoveries have lightened the costs of production to so great a degree as the improved methods of transportation which have come into general use during the present century.

The increase of capital at the disposal of society greatly facilitates production. Costs are reduced when capital is inherited, the quantity of capital being increased by the accumulations of successive generations. The growth of the saving instincts makes the accumulation of capital continually easier in a progressive society. Each generation adds to the stock of relatively imperishable goods, and each generation becomes more able to retain the utilities of perishable goods by continued reproduction. The effect of this growth of utilities is particularly noticeable in the case of land. Each generation, under good methods of cultivation, makes the land more productive than it found it. Permanent improvements are made, the rotation of crops

suited to particular lands is discovered, methods of fertilizing are improved, the growth of population steadily enhances the utility of particular tracts. In these ways the productivity of land is increased, that is, the quantity of labor required to produce a given number of commodities is reduced. Both the increase of capital and the increase of the productivity of land are powerful agencies in the reduction of social costs.

By changes in the distribution of population which shall prevent unnecessary transportation and manufacture; by invention of new processes; by the hereditary transmission of industrial qualities originally acquired, it may be, at great cost; by improved methods of education and industrial training; and finally by the growth of such moral qualities as love of home and country, industriousness, and energy, — by all these, and other means that will occur to the reader, the costs of producing the commodities which are demanded by society are very much reduced.

These two kinds of progress, which have been distinguished as social and industrial,

are in reality closely combined, and interact upon each other. Wise changes in consumption directly increase utilities, but they also influence industrial progress favorably. Figure VI. exhibits the modifications of the social

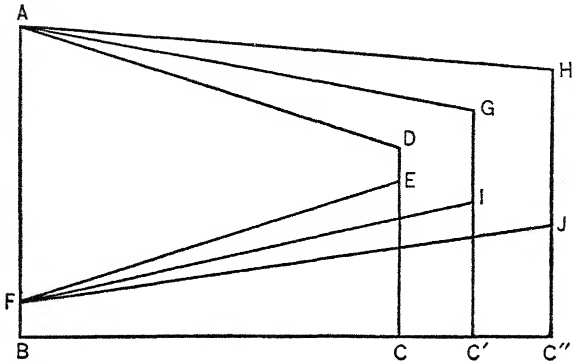


FIG. VI.

surplus area necessary to indicate the union of social and industrial progress. Both the line *AD* and the line *FE* tend toward the horizontal, the one forced upward at *D* by social progress, the other forced downward at *E* by industrial progress. The area *AFED* is enlarged at the second stage of progress to *AFIG*, and at the third stage to *AFJH*. Prosperity is increased by the twofold pro-

cess of increasing utilities and decreasing costs. The line $BC$ is extended to $BC'$, and then to $BC''$, because under the new incentives more commodities are produced. The total costs, after production is thus extended, are greater than before, but the relative costs are much less because of the increase of utilities, and the surplus utility on each commodity is made greater. The inducement of society to produce lies in the amount of this surplus; and in the increase brought about by the joint action of the two sets of tendencies, grouped under the very general terms industrial and social progress, are to be found the springs of that irresistible impulse to intense industrial activity which is so characteristic of modern society.

## CHAPTER VIII

### THE STANDARD OF LIVING

THE standard of living is a collective term for the necessaries, comforts, and luxuries which are within reach at a given time, and which are so related to each other that none can be dropped without lessening the amount of pleasure to be obtained from the others and so checking general prosperity. The standard of living directly determines, not only wages in the narrower sense, but all forms of personal income, except those which, like interest on inherited capital, are fixed almost solely by causes external to man's personal activity. The income of an individual producer is determined in some instances by the standard of the class of producers to which he belongs, rather than by his own personal standard. This is particularly true in the case of producers who have no capacity for initiating new enterprises and for acting independently of

the coöperation of their fellows. Without entering further into questions of distribution, it may be admitted that other causes unite with the standard of living to cause high or low wages, though there is no other influence so powerful or direct in determining whether income shall be great or small; and it may be admitted that the effects of the standard of living are more immediate and obvious in the case of the more intelligent and energetic producers, though a modification of the standard is essential to any permanent improvement in the economic condition of even the most helpless and degraded classes.

If to the standard of living is to be assigned so important a function as is implied in classing it foremost among the influences which determine income, and thus determine what degree of prosperity is to be enjoyed, it becomes a clear duty to ascertain how the standard itself is determined. The standard is high if it includes a relatively great variety of commodities; if these commodities satisfy intense wants so that their utility is relatively great; if the relations established among the commod-

ities have become so intricate, and the bonds connecting them to each other so numerous, that every commodity is held in the standard by the greatest possible number of separate associations. But what conditions are favorable to this greater variety, higher utility, and more intimate association? The answer is found in certain of the primary laws of consumption already developed.

All those commodities will be included in the standard of living which have as great a surplus of utility over cost as the original food supply has at the same time. If we crave an object as the hungry man craves food, we are equally sure to get it. Commodities are chosen in the order of their surplus utility. Even in the earliest stages of social development several articles of food will be chosen because they are imperatively demanded by the system. The beginning will be made with those articles which can be produced at the lowest cost. Utility is uniform because the tastes are not sufficiently developed to permit any great preference for one commodity over another, while differences in cost are so marked that the

relative amount of surplus utility is determined almost solely by these differences. In cold countries one or two articles of clothing will be urgently desired for similar reasons. The standard includes simply the few articles of food and clothing that have the highest surplus utility. The standard will be low, *i.e.*, but few necessaries, scarcely any comforts, and no luxuries will be enjoyed, because in the economic order of consumption there are a few commodities which have a large surplus, all other commodities having little or no surplus, because of their low utility, or more frequently because of their high cost. The first imperative condition, therefore, of an improvement in the standard of living is a modification of the economic order of consumption.

In the propositions concerning consumption,[1] the different methods in which the economic order of consumption is modified were indicated. The method which would obviously come earliest into operation is the one first enumerated, a change in the relative cost of producing different commodities. Any change

[1] Chapter VI.

which would bring a commodity of equal utility nearer to the cost level of the articles already in the standard would be a favorable condition to an increase in variety. A change in appetite affords a condition quite as favorable, if it reduces the undue surplus on articles already consumed by a decrease of appetite, or if it increases the number of commodities available by the opposite process of bringing the utility on a new commodity far above its cost. After the change in appetite it is found that some new article of food satisfies so keen a taste that its high cost is no longer an obstacle to its entering the standard. More common than either of these simplest processes is the more complex process of the formation of new complements by the substitution of positive for negative or neutral utilities, the elimination of discordant elements, changes in the imputation of utility. The standard is improved when that which gives pleasure is substituted for that which had been used from necessity, having cost as much, but having been incapable of affording any positive degree of enjoyment. Each

hour's labor devoted to the production of the new commodity yields a greater return than before. There is now additional motive for undertaking the labor. The standard is higher, and income is correspondingly increased.

Every stage of social progress is marked by the transformation of luxuries into necessaries. In a progressive society luxuries are those commodities which stand in the outer court about to enter the standard of life.[1]

Mention has already been made of the natural tendency to attribute most of the pleasure derived from a group of commodities to those elements last added to the consumption. These are the elements that are vaguely termed luxuries. Unpleasant associations cluster around the more primitive pleasures. The consumer is strongly inclined to satisfy his needs without resorting to the commodities which he once enjoyed, but now

[1] Luxuries are defined by Professor Patten as articles that the civilized man must have to keep disagreeable associations from destroying the utility of necessaries; *Dynamic Economics*, p. 131.

detests because of the changes in himself. This desire to avoid disagreeable associations leads to a keener appreciation of the pleasure to be derived from a complement from which they are entirely absent. The new commodities are made to enter the standard with a high degree of utility imputed to them, because they enable the consumer to receive the full effect of pleasant impressions and to avoid the disagreeable associations if they exist. The new standard may have greater or less expense than the old. If it has less, there will be a direct motive to improve it still further. If the expense of the new standard be greater than that of the old, the consumer will not throw out the new articles, but will strive to increase his productive power; or, failing that, will, either, by limiting the size of his family or in some other way, set causes at work which will ultimately cause a complete readjustment of society to the new standard.

To recapitulate: If the economic order of consumption is such that a few articles are used practically to the exclusion of all others because of their low comparative cost, then a change in

the economic order of consumption is an imperative condition of any improvement. Until other things are as cheap as rice in India, as the potato in Ireland, as Indian-corn bread and bacon in some sections of our Southwestern States, the standard of diet in those places will be low. Let a number of articles have nearly the same degree of surplus over cost, and the first favorable condition is secured. If social changes then effect a decrease of the intenser appetites, the increase of variety is assured. The articles before consumed can no longer be taken in large quantities, and when productive power is increased or new economies introduced, the tendency will be to choose the new commodities which, by the modification of the economic order of consumption, are brought within reach of the consumer. The standard of life includes those articles only which are brought above the margin of consumption by such changes as give them a surplus equal to the surplus on those articles of food, shelter, and clothing which are ranked among the necessaries of life.

To the student who is unaccustomed to the

technical terms of economic discussions, but is interested in the practical problems of consumption and production, even such elementary explanations as are contained in the foregoing paragraphs may seem to be too formal and theoretical for application to actual conditions. The doctrines that income is fixed by the standard of living, that increase in the variety of consumption is conditioned on a decrease of the intenser appetites, that the utility of a group is greater than the sum of the utilities of its members, that progress is secured by the gradual substitution of new complements for the older and less harmonious complements, — doctrines which are deduced from the fundamental and sufficiently well-established facts revealed by inductive study of human society, — are yet too unfamiliar for them to seem concrete and real. They are, however, in close harmony, so far as their practical application is concerned, with those teachings which are instinctively recognized as sound even when unfortified by economic or philosophical reasoning.

A decrease in the cost of commodities, a discovery of some new mechanical process, a

change in the habits of consumers, make possible a higher level of living for all who have an assured income of stipulated amount. Will the income now be reduced to correspond with the cheaper cost of living, or, will the advantage of the change be retained by the general body of consumers? For nine-tenths of the world this is a momentous question. The advantage will be retained if the standard of living is modified, not otherwise. Unless the pleasures which are now brought within reach are bound to each other by a multitude of new associations, and the whole consumption adjusted to the new conditions, its advantages will slip away into the hands of shrewd monopolists and unscrupulous dealers. Better choice of food, abstinence from stimulants, a heavier demand for suitable clothing, an insistence on ample housing facilities, are essential elements in the improvement of the standard. Not less important than these is such education and training as shall enable the consumer to judge more accurately of the value of the simpler works of literature, music, and art. "It is not a question simply of choosing the good instead

of the bad, but of choosing the best instead of the good."

The person who is without any canons by which to judge of a picture, or a musical performance, is deprived of a large part of the benefit which he might get from even a small income, and is deprived of that barrier which might have prevented a reduction of his income to the level of actual necessaries. The consumer who sees no difference between trivial doggerel and the literary masterpiece is at a distinct disadvantage of the same kind as that under which the laborer is placed who uses but a single article of diet and has in his wardrobe but a single dilapidated suit. Those consumers whose ideals are high, whose tastes are developed harmoniously, and whose demands call for a wide variety of physical, mental, and social resources, will win a commanding place in the unconscious economic struggle which continually goes on. Their income will be larger, their distribution fairer, their productive power greater. The considerations that have been presented have an interest not academic merely, but intensely practical and human.

# CHAPTER IX

## VALUE

THERE are three distinct attributes of goods which are of fundamental economic importance: their utility, their value, and their cost. Reference has already been made to the first and third of these attributes. We are now in position to consider the character of value, and the laws which determine its variation.

By the value of a commodity we mean its cost to the consumer, its power in exchange, the measure of its effective utility, its full importance to the society of which the individual owner, or would-be purchaser, is an integral part. These several phrases, each of which may be regarded as an equivalent for the term "value," themselves demand explanation. Such explanations will throw light upon the real nature of value, and will enable us subsequently to formulate a satisfactory definition.

The cost of a commodity to the consumer differs from its real or producer's cost, and generally exceeds it. The real cost to society is the amount of physical or mental exertion, the loss of vitality, involved in its production. In describing the making of goods it was necessary to dwell upon some of the physical conditions of which man's economic activities must take account. Changes in those conditions are continually modifying the relative costs of different commodities, making it harder to produce some, and easier to produce others. When the environment as a whole becomes more favorable, the total cost to society may be reduced for all classes of goods, but not usually for all classes in equal degrees. It is conceivable that a widespread physical malady might so far reduce the vitality of all producers as to make the costs of production universally greater. When cost, in economics, is contrasted with utility, or with value, it is cost in this sense of producer's expenditure of energy that is meant. Cost in this sense is not the equivalent of value, and does not stand in any constant relation to it.

Early economic theories attempted to base

value upon cost of production, but so many exceptions have been found to every law which has been formulated in accordance with such theories, that the attempt has been all but abandoned. But consumer's cost is a different thing, and is, indeed, only another name for value. It denotes, not the actual cost of production, but rather the precise amount of some other commodity that must be given up at any given time to secure or retain possession of the commodity in question. We may contrast consumer's cost with the real cost of production, just as we contrast the latter with value. If the producer of any commodity, dealing directly with the consumer, finds himself, after selling the commodity, in precisely the same position as when he began the act of production, with only a sufficient remuneration to make good his actual loss of energy, then in that special instance cost and value, or, in other words, consumer's cost and real cost, are equal. But this is not the normal result of production and exchange.

Value may properly be called power in exchange, if it is understood that the expression does not imply any inherent power in the good

which is valued. The reason why value came to be looked upon as power in exchange, is that, in the distribution of products, men are willing to interchange only goods of equal value. The value does not depend upon this fact. Value would exist even if there were no exchange. It is even possible to find other external tests of value than this. The amount of value does not come from the ability of the possessor to obtain in exchange such and such goods. This ability, on the contrary, is the effect of the value already existing in the good. The interchange of products is of enormous advantage to society, and the regulator of that process is the value of the products to be exchanged; but the significance of value is even more far-reaching, and its origin lies elsewhere than in the market. Power in exchange is an equivalent for value only when value is being used to determine the relative quantities which either party to the exchange can afford to give up to the other. It does not exhaust the meaning of the word "value" and is therefore not a complete equivalent.

When we describe value as the measure of

effective utility,[1] we reach a far more significant explanation of its real character. The utility of any commodity is its power to satisfy desire. Its effective utility is the extent to which the satisfaction of the desire is dependent upon the particular commodity. A glass of water has great utility if it quenches intense thirst; but if, on the loss of a glass of water, another could be substituted without the slightest labor or inconvenience, its effective utility is zero, because the satisfaction of the want is not in the least dependent upon the possession of the particular glass of water which is actually used. If a favorite volume of poems yields to the reader a delight which he ranks high above ordinary pleasures, its utility is correspondingly great; but its effective utility is measured by the importance which he attaches to the volume in view of all the circumstances which have a bearing upon it, — the possibility of securing another copy, the possibility of substituting other poetry, or the possibility of turning his attention to other enjoyments of equal or nearly equal intensity. Effective utility is the term which de-

[1] Clark, *Philosophy of Wealth*, Chapter V.

scribes the entire effect of any good upon the consumer's welfare. It includes its positive utility, with any necessary deduction for secondary negative utility.[1] Value is the measure of this effective utility. It is well to fix clearly in mind this conception of value, in order that its essential relation to utility may not be lost sight of in future discussions of the laws by which value is determined and distributed.

The final phrase suggested at the outset as an equivalent for the value of a commodity is its full importance to society. The standpoint is here changed from that of the individual to that of the total body of persons who might conceivably attach any importance to the commodity. It is yet too early to inquire by what method the estimate of society is ascertained; but to guard against misapprehension we may say that the method is precise and invariable, and that it is not by taking an average of the various individual estimates, that the importance to society is determined. This shifting from the individual to the social standpoint is necessary thus

[1] See Chapter V.

early in the explanation of value. All the various substitutes for the term "value" must frequently be understood in the social sense. Consumer's cost means the general cost to consumers, not that which an individual consumer may happen to incur; power in exchange throughout an entire market, not in an exceptional bargain which may fall to an individual producer; measure of effective utility, not to an individual, but to society. Value would remain even if the possessor of goods were in complete isolation, and its laws would correspond to those which prevail in society. But unless by some qualifying expression the sense is limited to an isolated individual, it is the value to society that is the object of investigation.

Value can best be explained by reference to the law of diminishing utilities. It will be simpler to consider first the case of an isolated consumer in possession of a stock of commodities which for a definite period cannot be increased. To adopt an illustration already familiar in the discussions of value, suppose an isolated settler on a Western prairie

to be in possession of three cribs of corn, one to furnish food for his family until the next crop is gathered, a second to feed his team of horses, and a third for chickens and pigs, that he may have meat for the winter. The corn is of uniform quality. He has no other kinds of grain or other substitute for the corn. The three wants that are to be supplied by the corn are of very different degrees of importance, but each is satisfied by one-third of the total supply. Since the utility of a good corresponds to the want which it satisfies, the utility of the first crib is almost beyond measure. The deprivation that would be experienced by an entire lack of grain for his own table would be intolerable. The utility of the second crib is somewhat less immediate, but is still very great, since the team is indispensable in cultivating the crop of the following season. That of the third crib is much less, but considerably above zero. Regarding the crib as the unit, for convenience, we may represent the utility of the three cribs by the numbers 10, 5, and 3, respectively. The initial utility of corn to the

isolated settler under the circumstances described is 10. The final or marginal utility is 3. The total utility is 10 plus 5 plus 3, or 18. What now is the value or the effective utility of any one crib? and what is the effective utility or the value of the entire supply?

It is obvious that the effective utility or value of each crib is 3. No crib can be valued at more than 3 so long as there is a supply of three cribs. If the crib which has a utility of 10 is destroyed or sold, it is replaced by one of the others, and the initial utility is not sacrificed. Notwithstanding the differences in the wants which they satisfy, the value of each is the same as that of the others so long as all are present, and the value of each is equal to the utility of the final unit. The value of the entire stock is easily ascertained by multiplying the value of each unit by the number of units. In the case under consideration the value of the stock is $3 \times 3$, or 9.

It will be interesting to notice what happens if the settler by some accident loses one of

his three cribs. He is no longer in position to supply all of the wants for which the three cribs would have provided, and he will naturally decide to do without the chickens and pigs, utilizing the two cribs for family use and as feed for his team. The initial utility is 10 as before; the final utility is now 5. The total utility is 15. Since neither of the two cribs will be used to satisfy a less want than 5, and since neither of the two can be valued at more than 5 so long as they are interchangeable, the value or effective utility of each crib is 5, and the value of both is $2 \times 5$, or 10. In this case a diminution of the supply has actually increased its value, though it has diminished the utility by 3. Value is derived from utility, but it does not equal it save in the exceptional case where initial and final utility are identical. If the settler had but one crib, or if the two wants satisfied by the two cribs were of equal intensity, the final utility would be equal to the initial utility, and the sum of utilities would be the value of the stock. Wherever utilities follow the ordinary law of a diminishing scale, it is

final utility, or the utility of the last increment which the consumer is in position to enjoy, that is significant in determining value.

In the illustration we have thought of a single consumer and of a single commodity. We may transfer this conception of final utility to the entire consumption of a typical consumer. There are many goods which he is in position to enjoy, and he will consume them in very diverse quantities. Each good will begin with an initial utility somewhat higher than the margin of consumption,[1] and will fall as its supply is increased until its final utility is similar to that of other commodities consumed. The last increment of any article which the consumer thinks it worth while to possess has a utility lower than that of any previous increment, and this is known as the final utility of that particular commodity. At this point utility and value are equal. The utility of this particular increment determines the value of the entire supply of that commodity. Each of the earlier increments has a value equal to the final utility, and the value of the entire stock is found as before by multiplying the final

[1] See Chapter V.

utility by the number of units in the supply of the consumer.

If in this way the value of all the commodities which fall within the margin of consumption is ascertained, their sum will express the aggregate effective utility of all the goods which at the given time the consumer has at his disposal. This would fall far short of the total pleasure or benefit which he will derive from their consumption. It will express only the extent to which his welfare is affected by the possession of these particular goods — their cost to him as a consumer, their final utility, or their value.

There is no reason why this summation could not be extended to cover the aggregate consumption of the entire community. Value is not merely a ratio, as has sometimes been said; it is a sum of final utilities. The fact that final utilities are often compared for purposes of exchange, and their relation expressed in price, which is a ratio, should not blind us to the fact that value is primarily a mental estimate of the importance of goods to human welfare; and that we may think of, if not accurately calculate, the total importance of all the goods at the disposal

of society. Values, like utilities or costs, may rise and fall. Whether they will do either is determined by all the varying influences which affect either the wants of man, or the extent to which at any given time those wants are supplied.

If consumers have but few wants, and those are satisfied almost to satiety, the goods which they consume will have little value as a whole, notwithstanding their abundance. The final utility, which is the multiplicand in determining the value of the supply of each article, is small, and the number of articles whose joint value is in question is also small. If a community has a great diversity of wants and is in position to satisfy each, even to a very limited extent, it will be in a more favorable position. The final utility of each article will be nearly as great as its initial utility, and the number of articles will be large. It is probable that the absolute amount of several of the articles which entered earliest into the consumption would also be great, as there is always considerable difference in the initial utility of different elements of the consumption, and large quantities of some of

the more generally coveted commodities will be desired before any beginning is made on others.

Industrial progress extends the productive power of society, enabling it to satisfy existing wants more fully. This process constantly lowers the final utility of the articles demanded, and the decrease in cost is roughly followed by a decrease in value. Social progress of the kind that elevates and diversifies human desires affects final utility in an opposite direction. It diverts the productive energies into new directions. The multitude of new desires crowd upon the older wants which were so fully satisfied, and will often prove to be of so great intensity that the consumer will sacrifice a portion of the older enjoyments to obtain the new satisfactions. Thus the scholar will go hungry or naked to secure a precious book or manuscript. This brings about a readjustment of the margin of consumption at a point which gives higher final utility to all commodities, and adds to the number of commodities included. The value of each may be increased by the rise in its final utility, and their individual value is no greater

than before the total values are increased by the addition of new commodities.

It has already become clear that an increase of values is not always an indication of increased welfare. The Western settler is not better off with two cribs of corn than with three, although he places nearly twice as high a value upon the two after one is destroyed, as he did upon any two of the three so long as he had them all. It is total utilities that limit welfare, not total values. But in determining the relative welfare of individuals in economic society, value plays an important part. The producer of wealth is chiefly interested in the value rather than in the utility of his product. A prominent inventor is said to have derived very little personal advantage from those inventions which have most contributed to human happiness, except that they have brought him personal satisfaction and renown. Minor inventions, of which the public has known comparatively little, have proved more profitable to him. Utility and value may, as in this instance, drift widely apart, and both may be far in excess of cost. Consumers as a class are concerned that there shall

be great utility and little value; producers, that there shall be great value and little cost; society as a whole, that there shall be great utility and little cost.

We must now redeem the promise of an earlier paragraph to explain the method by which the social value, or, to adopt a more familiar expression, the market value, of a commodity is determined. The decisive factors are the supply of the commodity and its final utility to the last, *i.e.*, the least eager, consumer who is in position to take any portion of it.

Let us suppose that there are on sale in a given market twelve pairs of shoes, and that there are an indefinite number of persons who desire shoes, provided their value is not higher than the final utility of shoes to themselves. For the sake of simplicity it is assumed that all the shoes are to be sold, whatever they will bring; in other words, that the present owners do not enter the lists in competition with buyers, but freely place all twelve pairs in the hands of a dealer with instructions to sell them all at the best rate which he can get. It will also be assumed that each purchaser desires

but one pair, and that the condition of consumers varies so widely that no two will find the same final utility in a pair of shoes. The first finds himself in urgent need of shoes, and their final utility to him is almost as great as their initial utility. If he could not otherwise find suitable covering for his feet, he would willingly go without a suit of clothes, or live in a cheaper house, to provide himself with shoes. The final utility of shoes to him we may represent by the number 24. Others among the possible purchasers attach less importance to them by differences which permit us to range their estimates consecutively from 24 to 1, there being a consumer for each intervening number. If there were but a single pair of shoes to be sold, it would bring 24. The duty of the dealer would be to find the purchaser for whom shoes have the highest utility, and to insist upon securing all that he is willing to give. In the case supposed, there are twelve pairs, and all are to be sold. It is therefore necessary that as many as twelve customers be supplied, since no one desires more than one pair. It is now the duty of the dealer to find

the twelve customers for whom shoes have higher final utility than for any others, and the twelfth or last one to be brought into the bargain will be, according to the conditions assumed, a consumer for whom shoes have a final utility of 13. The aggregate of the final utilities enjoyed by the twelve consumers will be 222,[1] but their market value will be determined by the final utility of shoes to the twelfth purchaser. Since this is 13, the market value of shoes on the day of the sale will be 13, and the twelve pairs will bring $12 \times 13$, or 156. There is no method by which the dealer can make any purchaser, however urgent his need, pay more in the open market than the value of the last pair to be sold.

If he does not care to dispose of the whole stock, but would rather reserve one pair than accept so low a price for it as 13, he can then disregard the estimate of the twelfth would-be purchaser just as he previously disregarded all lower estimates. The final utility which would then become operative is that of the eleventh customer, for whom shoes have a final utility of

[1] $24+23+22+21+20+19+18+17+16+15+14+13=222$.

14. The eleven pairs now to be sold will bring 11 × 14, or 154, nearly as much as was obtained for the twelve pairs. In the actual course of business it is often found that the total value of a stock is increased by the withholding of a small part of the supply. The reason is that a larger multiplicand is obtained by the rise in final utility.

The only modification of this account of the process by which market values are determined necessary to make it fit the normal operations of the market, is the fuller development of the idea of supply. The supply of a commodity is not as a rule in the hands of a single dealer and it is not definitely fixed in amount. For the moment the supply of any given commodity may be fixed by physical causes. The abundance or the meagreness of a harvest, the success or failure of a fishing expedition, the possession or the lack of suitable capital, or other causes, may determine the amount of the commodity to be offered for sale. But looking over a longer period, it will be recognized that these agencies can be controlled in large part, and at any rate energies can be diverted from one channel to

another in such way as to increase to almost any extent desired the supply of any single commodity. Whether this will be done depends upon whether there is a sufficient motive, — the probability of a sufficient reward. The amount of the reward depends upon the final utility of the commodity in question to consumers. If there are many persons for whom it has a steady, high final utility, the supply will be governed by this fact.

Here, then, we reach the fundamental cause of value, and the ultimate fact of which the science of economics need take account, — the clue which may unravel the bewildering maze of economic society. The making of goods, the efficiency of production, the direction which industry takes, the comparative efficiency of different economic societies, the interchange of products, markets, commerce, credit, value, the rewards to producers determined by the relative values of different products, — all these important phenomena fall into orderly relation if we start with the final utility of goods[1] to con-

[1] Not their market value. This is determined by two elements, final utility and supply.

sumers. It is true that changes are continually taking place in the final utilities of commodities, and it is important that we should understand their cause and method of variation. But it is even more important that we should fully appreciate their pivotal character and far-reaching consequences.

Changes in the final utility of a commodity to individuals do not affect the supply until they become so permanent and extensive as to influence the makers of goods, as distinct from those who have stocks on hand in the markets. But speaking only of such extensive changes, and regarding the power of society as fixed, we may say that final utility to a large extent determines the supply. If steel acquires a higher utility by a discovery of important new uses to which it can be put, productive power is turned in that direction and its supply is increased. A multitude of economic relations are modified by the change. Credit, fixed capital, circulating capital, the market for steel, the market for commodities of which steel is a component element, the market for commodities desired by the producers of steel, and countless other

phenomena, undergo more or less modification — all these influences originating in the change in the final utilities of the commodities affected.

Market value is ascertained, not by observing the descending scale of estimates made by all possible communities, but by measuring, along this scale, the quantity which producers finally decide to place upon the market. Wherever that quantity reaches, there on the scale is the precise final utility which determines market value. If the wants of men remain unchanged in character and intensity, the market value is fixed by a simple calculation of the supply. If wants change, a temporary but sometimes serious misadjustment may arise between the supply and the anticipated rewards to producers. It may be found that a largely increased supply is met by a large reduction in the number of persons for whom the commodity possesses any high degree of final utility. The value, unless the stock is of such a nature that it can be withheld from the market indefinitely, may sink so low that it does not cover the costs of production. On the other hand, a shrewd producer

may bring a large stock at the precise time when final utility is rapidly rising, or he may induce the rise by his own skilful advertising, leading people to attach an altogether new importance to the want which the article is designed to satisfy. Notwithstanding his utmost efforts in production, he may not be able to satisfy even all of the consumers whose estimate of the article is sufficiently high to reward his efforts. If the article is one protected by patent or copyright, or some natural monopoly, the final utility may long remain near the initial utility, bringing great rewards to producers, and leaving very little margin between utilities and values.

The market value of any commodity, then, is determined by its final utility to the last consumer, whose coöperation is necessary to exhaust the supply; or, to be more accurate, since this last consumer, like any of the earlier ones, may demand more than one increment of the commodity, and so count in connection with more than a single unit of consumption, it is determined by the final utility of the last portion placed upon the market. If there are any

reservations in the minds of sellers as to the point below which they are unwilling to allow the value to fall, then to that extent their own estimate must be included in precisely the same way as that of other buyers. If all of the supply is not taken by persons to whom it has a higher final utility, it is the final utility to its owner that determines the value of what remains.

N

## CHAPTER X

### THE DISTRIBUTION OF PRODUCTS

The chapters immediately preceding have dealt with the abstract laws of consumption, prosperity, and value. It is now time to return to the more concrete facts of industrial society, in order to trace the operation of economic forces in the actual exchange of goods from hand to hand.

Nature deals very unequally with the regions of the earth in the distribution of the various sources of wealth. If man in each region were dependent entirely upon the goods that he finds, he would be fed and clothed and sheltered in curious fashions. As we have seen, man makes goods as well as finds them. At first thought it might seem that this power of making goods would of itself rectify the inequalities of nature in the disposition of her free goods, since man would be able to make on any given spot the things of which nature has been niggardly in

her supply. If, however, we recall clearly what is meant by the making of goods, it will be seen that so far from rectifying in this manner the inequalities of nature, man's industry tends rather to increase them. Industry is dependent upon nature for its materials. The making of goods is only the increasing of the number of goods and the increasing of the regularity of their supply. If we bring in no other considerations, what we must say of man's activity in the making of goods is that it produces more fruit where nature produces some fruit, that it turns to account the flesh of animals where animals are to be found, that it unearths minerals from the natural mineral deposits, that it increases by cultivation the crops of grain which are found growing wild. Evidently all this only emphasizes, and does not correct, the irregularities in the natural distribution of minerals, grain, fruit, and animal products.

Surrounded by superfluous quantities of the goods which exist spontaneously, or are easily made, the inhabitants of each region are deprived of the means of gratifying their most rudimentary wants in other directions. Hunters

in cold regions slay the wild animals of their chase for a small quantity of food, and throw aside their skins, being already well supplied with skins, and the greater part of its flesh; but they suffer severely, it may be, for lack of salt, for iron, and other commodities which their environment does not provide. African savages may remain in the most abject poverty notwithstanding the ease with which they might supply themselves with precious ivory. A profusion of tropical fruits does not bring any great amount of real wealth to the indolent natives of equatorial regions. Nor even if their indolence gave way to the most enterprising and vigorous industry, in the gathering and preservation of those fruits and other products which nature gives them, would that industry be of any avail to raise their standard of civilization, or to insure them a comfortably independent and normal existence. Midas, starving in the midst of his gold, is not poorer than any community which is dependent for its goods, and for the materials of its industry, upon the resources of its own local environment.

This is not yet the whole truth. Industry

not only does not of itself correct the inequalities of nature, but it gives rise to others which in turn are quite as much in need of correction. The industrial characteristics of man show diversities almost as great as those of the physical world. These diversities are often parallel with the diversities in natural products and make the differences in the industrial product more striking than they would be if men of the same type were to be found everywhere. It may be that the differences in men are due to the same underlying causes as the differences in natural products. However this may be, both sets of differences exist, and they may at times partly counteract each other, while at other times their effort is cumulative. If Japanese turn their attention to the occupations which they find agreeable and natural, they will make goods of a different sort from those that would be most easily produced by Russians or French, and this would be so, even if exactly the same natural materials were within reach of all nations. The industrial characteristics of the negro are still observable in this country, as are also those of the Chinese, the Italians, the Germans, and the

Irish. If any one of these nations were put in easy contact with every variety of natural product upon the globe, and given free opportunity to gather materials of every sort, it would still fail to make certain kinds of goods that would be first produced by some one of the others. Of the commodities which the first nation would include in its total production there would be many of inferior quality, as compared with similar products of the other countries. The general tendency of these differences in the industrial qualities of different communities is to increase the number of superfluous, and hence relatively worthless commodities, and to diminish the number of many others that might be provided from the materials at hand if there were the requisite ability to utilize them.

There is still a third principle operating in the same direction with the two that have been mentioned, viz., the division of trades, or, as it is frequently but less accurately called, the division of labor. In the development of industry it is found advantageous for the members of each community to separate themselves into distinct trades or occupations. The chief

economy resulting from this arrangement is that it permits each producer to devote himself to the particular tasks for which he is best fitted by disposition and training. Not that this result is by any means always secured, but division of labor tends to secure it. There are certain occupations which demand great physical endurance. Under free competition those who have the necessary endurance will naturally succeed best in those industries, and will gradually drive out others who are not so well fitted. Other occupations require manual dexterity, and the law of evolution will gradually eliminate all who do not have the capacity for acquiring the necessary degree. There are still other occupations in which lightness and delicacy of touch are the chief requisites. Generally it is a peculiar combination of qualities rather than the predominance of any one that is demanded, and mental qualities are even more decisive in most instances than physical qualities. By calling to higher occupations those who have superior or happily blended qualities, the division of labor permits much good work to be done by persons less liberally endowed with physical

strength or mental capacity, but still able to compete for certain kinds of work.

Besides apportioning producers in this manner to different tasks in accordance with their natural capacity, the division of labor is of advantage in that it permits a great development of specialized skill. Constant repetition of the same processes will produce a high degree of efficiency, even where efficiency is at first very moderate. Precision and speed can be gained by the average worker only by confining the attention to comparatively few operations. Practice is necessary for perfect work in the best of workers, and it secures from the great body of workers, if not perfection, at least a very efficient total production of goods.

But again it will be noticed that if the community is self-contained, depending for its industry, thus organized upon the principle of the division of labor, upon the materials which its members can extract from the particular portion of the earth's crust with which they are in contact, the evils flowing from the unequal distribution of natural products and the unequal

physical and mental equipment of men are not remedied by such a division of labor. The hunters, after a division of labor, may prepare the skins of wild animals with less difficulty and in larger quantities, but the relative quantities of the goods which they had in abundance have been increased by every extension of the principle of division of labor, and similar results follow its adoption in communities of other varieties.

We have assumed thus far in the present chapter that the smallest industrial unit is the local community — large enough to permit within itself a certain degree of division of labor, and to secure some degree of control over the forces of nature; that this community, owing allegiance to the patriarch or oldest member, and consisting only of his descendants and those who have been adopted from other families by marriage, has somewhat clearly marked characteristics, showing a preference for certain products and certain kinds of activity. Such a community will be able to provide for its absolute necessities, and it will usually possess an abundance of some one or more kinds of wealth.

If these particular commodities, which are obtained from the environment at little cost, are not produced in great profusion, it is only because their marginal utility more quickly falls to the level of the marginal utility of other commodities which, although with greater difficulty, they still think it worth their while to produce.

In such a community, as in every other, there would be a desire to equalize the final increments of consumption. Labor cannot be spent exclusively upon the goods which are produced most easily, since, if the community has advanced far enough to have any diversity of wants, it must spend its energies chiefly upon increasing the supply of the products which, in their environment, are scarce. In any division of labor which takes place, disproportionate attention must be given to the least remunerative tasks. Their own industrial qualities may or may not mitigate the difficulties imposed by their lot, but at best they derive no advantage from the lavish gifts of nature, which are offset by such rigorous conditions in the production of other and no less necessary goods.

It would require very limited intelligence indeed to discover that it would be of advantage for two such local communities to come into contact with each other, in order that they might exchange products. The enormous gain from such contact would not be so obvious to the communities on their first contact, as it is to us, for the reason that each community having extended its production in all the directions for which it has discovered any wants, is not ordinarily conscious of superfluity in any products. If, at the moment of contact, both have by some accident accumulated more than their normal portion of the products which are easily obtained, or if each is suffering from the lack of a commodity with which the other is supplied, or if, again, either makes clear to the other that it is in the possession of commodities of some sort which are unknown to the other and have the power of adding a new enjoyment, then some kind of commerce in the superfluous or the new commodity is likely to begin.

It will naturally begin with barter, *i.e.*, with the direct exchange of one commodity for another, each community parting with the com-

modity which it can secure upon the easiest terms, for any which is either entirely beyond its reach, or is obtainable from its own environment only with difficulty. When such exchanges have once begun, they tend to increase with ever accelerating velocity. The superfluity, which comes once as the unforeseen gift of Providence, will be secured in the future by conscious effort. The equalizing of the increments of consumption will henceforth be secured, not by apportioning effort directly in accordance with marginal utility, but by exchanging for other commodities that commodity whose utility is brought below the margin of consumption by its abundance. This readjustment, by increasing the total number of goods consumed, may raise the margin of consumption, thus giving a higher utility to the last increment of each good consumed.

We are thus brought again to one of the most important questions in economics, the one perhaps about which there has been more discussion than about any other, but to which we have already given the answer in the preceding chapter. Upon what terms are the communi-

ties to exchange their products? Each has commodities with which it is willing to part. Each has learned to desire commodities which the other is disposed to give in exchange. How shall they agree upon the terms of exchange? This is the question of value, and the answer is the same whether the exchange is between individuals or between nations. Each community values its goods in accordance with their marginal utility; but all communities except that which obtains the least marginal utility will receive in the intercommunal exchange more than its own marginal utility, for it is the marginal pair whose estimates are decisive in determining the actual rate of exchange. If there are but two parties to a given exchange, the rate is determined by the amount that each must give up in order to equalize the marginal increments of its own consumption. When either of the two communities finds that the marginal utility of the commodity which it is receiving no longer exceeds that which it gives in exchange, the barter will cease, even though the other is willing that it should continue. An error of judgment on either side may force the

continuance of an unfavorable exchange, but even with primitive races such errors would be less common than might at first be supposed. It is not impossible even for a savage to tell whether a week's labor will be more remunerative, if spent in securing more of the commodity than others produce, than if spent in the sort of activity of which he secures the benefit directly.

It is obvious that barter, or direct exchange of the kind that has been described, has definite and quickly reached limitations whether between communities, or, in a society of a different kind, between individuals. Historically, commerce is a growth, and whenever they have been reached, limitations have been removed in various ways; but it will aid in appreciating the necessity of various features of our present complicated commercial organization if we try to picture the difficulties involved, in making the exchanges with which we are familiar, by a system of barter. Those who have surplus commodities of any particular sort will not readily fall in with others who desire them, and who, at the same time, possess other commodities that are acceptable in exchange. The im-

probability of this double coincidence is so great that it would at once cut off nine-tenths of our present exchanges, leaving only the rude trading of regular farmers or hunters.

A second difficulty would be found in the fact that the commodities to be exchanged would not have units of equal value. An ivory tusk, a bundle of skins, a horse and saddle, may each have a pretty clearly defined value, *i.e.*, a clearly defined importance in the general aggregate of commodities which make up the total consumption of an individual, while there is still difficulty in making advantageous exchanges, because there is no convenient way of expressing that value in a unit recognized in all the communities that have commercial relations.

Practically neither of these obstacles would long stand in the way of commercial progress. A unit of value is in use almost as soon as there is any consciousness of the phenomenon of value. Whatever commodity in any community is especially esteemed because of its importance in their daily life, or because of some particularly attractive qualities, be-

comes the standard of value; and the value of all other commodities is intuitively expressed in terms of that standard. Cattle and sheep, tobacco, wampum, iron, copper and silver, and many other commodities, have served this purpose. Instinct and reason have united to dictate, at each period, and for each people, the commodity which was best suited to serve as a standard of value, and the rule is that it is one whose marginal utility rises or falls with that of the bulk of commodities in use, whose marginal utility is therefore a fairly accurate expression of the margin of consumption of the people who use it. If two communities with different standards come into contact, there may be some friction in adjusting exchanges at first, but if permanent relations are established, the better of the two standards will gradually displace the other, and will become the ordinary standard of both communities.

When a standard of value has thus been established, the necessity of double coincidence in barter is also obviated. He who desires any particular commodity can always

obtain it, if he is able to offer the requisite number of units of the commodity which is accepted as the standard. In disposing of his own surplus goods he has therefore to look, not for persons who have the commodity that he desires, but only for some person who is supplied with the standard commodity. This will be an easy task, since every one who expects to purchase his goods will have supplied himself with the commodity which he knows will be acceptable in exchange. Awkward as it may be to carry around quantities of tea, strings of wampum, or bottles of olive-oil, or to drive a herd of oxen to the market-place as a condition of making purchases, it would be more economical for the producer, than for him to spend still more time in finding a purchaser who happens to be supplied with the goods that he wants.

This cumbrous method of making exchanges, though a great improvement over direct barter, is readily simplified by the next step in advance. If three persons have obtained an ox in exchange for some commodity that they have produced in common, and they wish to

divide, each taking his own share, it will evidently be necessary to slay the ox, and divide the carcass, — a process which may involve loss of value. If a person has two exchanges of equal amount to make in a distant village, one a purchase and the other a sale, it will evidently be an annoying and needless task for him to take the tobacco, or tea, or oxen, to the village and back again. Both of these wasteful processes, and many others besides, may be avoided if, when exchanges are made, a representative of the value standard can be passed from hand to hand, instead of the actual commodity which constitutes the standard. This sensible arrangement is very soon discovered and utilized. When we read that tobacco served the early Virginians as a medium of exchange, we must not suppose that so many pounds of tobacco were actually delivered in bulk in every purchase. The tobacco which was thus used was ordinarily safely stored in a warehouse, and the ownership of it only was transferred when an exchange was made, the owner of the tobacco giving a written order or certificate to the

owner of the commodity which is given over in exchange for it.

The name given to any commodity which thus serves a community as its standard of value is money. If the commodity happens to be suitable for general circulation, it passes from one person to another with every exchange of goods. If not, or if it is desired to economize the standard commodity, its representative is thus used. This representative may have a value because of its own utility, or its value may lie only in its representative capacity. Gold when first introduced may not have been money, but the representative of money. It is asserted that the first coins were in the form of animals, indicating that they were substitutes for cattle.

The gradual increase in the use of money, and the substitution of superior for inferior kinds of money, are prominent features of the early stages of the growth of commerce. But we must guard against the danger of exaggerating their importance. Money is indispensable as an agency of commerce, but it is an agency which men hit upon naturally,

and which acts all but automatically when it has once been introduced. The causes of commerce lies in the differences in the natural conditions of the various regions, giving rise to a diversity of natural products; in the differences among various races and communities, giving rise to a diversity of industries; and in the division of labor, giving rise to a further diversity of industrial products. The interchange of commodities permits producers to reap the benefit of their natural and industrial advantages, and to obviate the necessity of resorting, in any particular region, to those features of the environment that yield but scanty return to labor.

Commodities within each community are valued in accordance with their marginal utility, the production of each ceasing as soon as its utility has fallen to that of the other commodities entering into the consumption. But the production of any such commodity may be extended indefinitely if, instead of being wholly dependent for its value upon its actual consumption within the community, it may be exchanged for new goods whose utility is

above the margin of consumption. If there are many such goods obtainable, and their initial utility is great, it may even become practicable to give up the consumption of the last portions of many goods which had been consumed, and, at least temporarily, to raise the margin of consumption to a higher level. Labor would be expended in the production of fewer commodities; but a larger number would be consumed and the marginal utility of each would be higher. Every article consumed, including those of which the surplus is exchanged, would thus have a higher subjective value than before commerce began.

In order that commerce may be carried on at all advantageously, there must be a considerable degree of mutual confidence between traders. Goods cannot be brought to a market to be exposed for sale unless there is a somewhat stable social condition. Tribes that are at war, or are in constant fear of treachery, cannot conveniently exchange their products, and the gradual development of commerce is closely connected with the development of credit. A low degree of credit is

presupposed in barter, more is needed in a system of representative money, and its complete supremacy is required when commerce has extended to distant lands, and goods are sent great distances without the personal escort of their owners.

The introduction of improved methods of transportation is one of the most powerful agencies in the development of commerce in its modern form. Goods cannot be exchanged on any large scale while they must be carried by human beings, or by beasts of burden, for the reason that their value does not justify the expense. Water transportation is cheaper, and accordingly the first commerce of any magnitude is between the different ports of inland seas, where the dangers of navigation are comparatively slight, and its economy sufficient to permit exchanges. Canals bring the benefits of water transportation to interior regions, and a combination of water route with a short land route over which goods are carried in caravans, finally unites places that are remote in distance. But until very recent times the contact was only occasional, and had but little effect upon

the general welfare of the inhabitants of the regions thus brought into relation. In Europe, throughout the Middle Ages, exchanges were ordinarily confined to the different trades, or guilds, of a single locality. The new demand for foreign luxuries is the most marked characteristic of the revolution of industry and commerce at the beginning of the sixteenth century.

Throughout the next three hundred years commerce steadily advanced in importance as a feature of the economic life of Europe and America, and within the present century it has become far more important than ever before. The application of steam to ocean and river navigation and to the steam railway have worked a commercial revolution in the second half of the century. At the beginning of the century, the growth of the factory system, with its consequent extension of the principle of division of labor, had accomplished what is known as the industrial revolution ; but it had also its effect upon the development of commerce. It increased the number of the cheaply manufactured goods, which, if we consider only the needs of

the communities that make them, are superfluous and of little utility, but which, in a country with extensive commercial relations, are really or partly finished commodities, since they are made not for themselves, but for the sake of the goods which they will bring in exchange.

The later revolution exhibits the development of a network of railways and steamship lines binding together all parts of the world, bringing Europe and America within a week of each other, and making it possible for each city to obtain from a distance, not merely spices and such few other goods as have great value compressed into a small bulk, but even its food supplies, the materials used in the erection of its houses, and the materials from which it manufactures its clothes. The extent of the revolution effected by the new methods of transportation is illustrated by the fact that a bushel of wheat may be shipped from Minneapolis to London, only a very small part of its value being used up in the expense of transportation, but that wheat cannot be hauled to Minneapolis by wagon from a village twenty miles distant because of the expense.

There is one very important feature of the organization of commerce of which we have not yet given an account, although in order of development it belongs earlier than the more striking features of the improvement in transportation facilities. Reference has been made to the possible difficulty of the early producer in finding purchasers for his product, who are supplied with the commodities that he desires. This difficulty is met by the use of some one commodity which all agree to accept as a medium of exchange. With this difficulty out of the way, the producer may next encounter one which is more fundamental. He may not succeed in finding a purchaser at all. And yet purchasers may be quite as anxious to find the supply, as the producer is that they should. Coincidence of buyers and sellers is not so difficult as the double coincidence requisite in barter, but it may still be so difficult that a disproportionate amount of time is necessarily spent in marketing products.

A device intended to remedy this is the setting apart of a specified building, or open square, in each village, to which, upon specified days,

all producers who have anything to sell shall bring their wares. In acordance with the particular kind of exchanges which it is expected will take place in it, each stall or portion of the market-place is called a vegetable market, a fish market, etc., as the case may be.

The market brings together in a convenient manner the persons of a single locality who have products to sell. Annual markets, or fairs, serve the same purpose for larger areas. Many of these fairs were once of national importance and lasted for a month or more, though the usual period was from one to two weeks. Such a fair still survives in the "Messe" at Leipzig, Germany, and a much more extensive one in Russia, at Nijni-Novgorod. Within the six weeks during which this great fair is held it is said that it is frequented by 300,000 persons, and that goods are exchanged to the value of nearly $40,000,000.[1]

This plan of markets and fairs has many advantages. Otherwise it would not have remained, as it has in many countries for centuries, the ordinary method of making the great

[1] Gibbons, *The History of Commerce in Europe*, p. 81.

majority of the most common exchanges. The grouping of these exchanges at a particular place, and on particular days, forms a favorable condition for the rise of a special class of intermediate traders, who perform the function of transferring products, without bringing the seller and purchaser into actual contact at all. A buyer who has either studied the desires of consumers for himself so that he feels warranted in accumulating a stock, or is in relation with still other buyers who are in such a position, gives in exchange either other goods, or, more frequently, money or its representative.

In one sense this is only a further extension of the division of labor. The dealer performs a part of the process of production, if he adds to the utility of the product by dividing it into smaller portions more suitable for consumption, by mixing different commodities, as the druggist does, to make them available for consumers, by storing goods until consumers desire them, or by any other of the many methods of increasing the utility of products just befcre they pass into the hands of their final purchasers. But all this might be done and often is done by the original

producers. The trader still performs a unique function for society by his aid in the interchange of products, if he merely assumes the risks involved in accumulating a stock of goods, in confidence that there are purchasers who will be attracted where the stock is known to exist.

The word "market" has been applied in an earlier paragraph to the special place where goods of a particular kind are exposed for sale. Even where such markets as these exist, the word market is also used in a wider sense. By the market for fruit, using the term in this larger sense, is meant not merely the particular place where fruit is exposed for sale, but the entire series of sales and purchases within a given area. It is said that there is a good market for fruit, when there is a considerable supply of fruit, within the designated area, and a considerable number of persons for whom fruit has a high subjective value. A local market is a limited area within which subjective values may be compared easily, and within which the same general conditions of production prevail. Wider markets are formed when by improved methods of transportation it is found possible to transfer goods

from one market to another, thus checking the tendency toward lower values in the market which is well supplied, and toward higher values in the market in which they are scarce. The two local areas thus become one market whenever the same conditions of value prevail in both. The characteristic tendency of modern commerce is the breaking down of the barriers between different markets, and the gradual development of the world market for all ordinary commodities.

To nations of the modern world with their intricate commercial ramifications, the opening or closing of a market for their surplus goods is an event of vital significance. An abundance of particular natural products will not insure that markets for them will be won or held, unless there is also an enlightened commercial policy, and the commercial policy of a nation is closely connected with its general industrial policy. The manufacture of goods becomes an aid to commerce when it is specifically directed toward the markets of the world rather than toward those of the immediate locality. Many nations, both in the ancient and the modern world, have

occupied themselves chiefly in the making of goods which are intended for foreign markets. In some cases the materials from which they are made have first been brought from other countries, perhaps from the very countries to which the finished products are returned. The Phœnicians, many centuries before the Christian Era, were especially skilful in the preparation of purple and scarlet dyed fabrics, and it was their custom to import the new materials for these goods, and then to reëxport them in their manufactured forms. They sent out also carpets, works in gold, silver, ivory, amber, and glass, in return for which they obtained wool, hides, metals, and food-stuffs.[1] The English, at the present day, import raw cotton, manufacture it into cloth, and return it to the very regions in which the cotton is grown, — obtaining in return for the added value, cereals, tobacco, sugar, additional raw materials for further manufacture, and such other products as they may desire.

The possibility of exchanges of this kind arises, either from the superior industrial skill and commercial enterprise of the nation which

[1] Gibbons, p. 8.

thus shows itself to be independent of her local environment, or from the fact that the peoples with whom she trades find a more profitable employment for their energies in the production of raw materials, and the manufacture of special classes of goods for which there are peculiarly favorable conditions. In the early stages of the industrial and commercial development, a country will be likely to find that it is more economical to rely in part upon exchanges of this kind, permitting other and more advanced nations to utilize their acquired skill and machinery in manufacturing its finer products. But experience has shown that is wise for a nation to develop as rapidly as possible its own latent powers, to learn the processes of manufacture in use elsewhere, and to invent methods of utilizing directly the materials furnished by their environment. Schools of technology, experimental stations, and commercial high schools, are a legitimate part of the educational policy of a people that desires to put itself in a favorable commercial position. The object aimed at is not a sundering of commercial relations with other nations, but rather the strengthening of

those relations, by offering in the markets of the world more and more valuable products. The method will be not so much the duplicating of the best products of the industry of other nations, as the systematic study of the wants of all consumers, including ourselves, recognizing that there are wants not adequately supplied, or capable of indefinite expansion if the appropriate commodities can be supplied.

This suggests wherein lies the real benefit of commerce to a nation, as made up of importers and consumers. The standard of living includes all those commodities that have a marginal utility above the margin of consumption, and that are so intimately interrelated that the absence of any one would induce consumers to modify their consumption, or to increase their industry sufficiently to restore it. Commerce, by making it possible to secure new commodities on more favorable terms than is permitted by the local environment alone, adds to the consumption a greater or less quantity of each of the new commodities, in accordance with their marginal utility. The effect is immediately noticeable in the improvement of the standard of living, not

only increasing the number of commodities that it includes, but, what is more important, rendering it more stable, and lessening the probability that serious deduction will be permitted, so long as greater economy in use, or greater energy in production, can prevent it.

The introduction of quick transportation has brought immense quantities of fruit into the markets of every city and village. The use of beet-root for the manufacture of sugar has added a staple product to the world markets. Changes in the methods of working up iron ore into iron and steel have practically given a new material for the construction of buildings, and for a thousand other uses. The building of railways, the improvements in ocean steamships, and the introduction of agricultural machinery have brought about a fall in the prices of agricultural products so great as to amount to a revolution; and the development of the packing-house industry, supplemented by the rise of the frozen-meat trade, has caused a corresponding decline in the price of meat. These are only typical of the far-reaching changes of the past two decades. What is their significance in the

general interchange of products among the inhabitants of the earth? That they will be followed by radical changes in the standard of living in many countries, is certain. We may expect that the urgent necessity of finding new and enlarged markets will stimulate commerce with the more backward races, and that cheapened products for our own population will modify our industrial and social life. The changes going on in our midst in the grouping of population, in the development of new and more complex desires, in the increase of leisure by the shortening of the hours of labor, in the enlargement of individual capacity by better training of muscle and mind, are dependent upon an effective distribution of the products of an effective industry.

# CHAPTER XI

## MONEY

The evolution of industry begins within the family community. Since the family provides for all its own necessities, what we know as exchanges do not take place. Family discipline compels each member to make his due contribution to the general stock, and the goods are distributed as the needs of the several members require. Marginal utility shows itself, not as value, but as the regulator of the amount of energy to be expended in each of the possible directions. The second stage in the evolution of industry is reached when each family exchanges with others in direct barter. Value now appears occasionally as power in exchange. An increase in the number of exchanges finally gives rise to the market, and to a special class of intermediate traders. The evolution of the market creates a demand for a standard of value.

Money is put to many other uses, but there is none except its service as a standard of value that is inseparable from the idea of money and that could not be filled by something else than money.

It would seem that the only real requisite characteristics of money are permanence of qualities and universality of demand, within the area of the given market. Both of these characteristics are relative, and it is meant only that the commodity chosen must possess them in higher degree than goods in general. If the widening of the market discovers some other commodity more generally desired, or of more permanent value, the latter will tend to displace the former as the recognized standard of value. These two considerations are sufficient to rule out as money, at once, many of the commodities to be found in any one community, and to designate the one or two that are suitable. In a region well supplied with grass and peopled by herders and shepherds, the idea of permanence is naturally associated with cattle and sheep. They are everywhere recognized as a source of wealth.

Possession of a large herd gives distinction and credit, and hence a position of power in the community. A man's wealth is naturally measured in the number of his cattle, and after a time this manner of speech becomes so well established that it is applied even to persons whose wealth really exists in other forms. At any given time a man is said to be worth so many cattle, if his wealth could be exchanged for that number, even though at the moment he does not own a single animal.

In an agricultural colony, like those of Virginia and Maryland, tobacco or some other agricultural product is more readily associated with the idea of permanence and general demand, — partly, however, because there is an unlimited foreign demand for that product. If it were desired only by the inhabitants of the colony, the fluctuations in value, resulting from the difference in the crops of different years, would be so great as to render it unfit for money. Salt is a suitable commodity to serve as money among a people that do not have direct access to salt mines or deposits, or that have not learned to produce it by

evaporation of salt water; but as soon as they are brought into close although irregular contact with a liberal supply, it loses its money characteristic. No commodity that is manufactured especially for a particular market, and is not generally desired by other people with whom its manufacturers trade, can serve as money, though it may serve for purposes of barter with the people who have an eager desire for it. Opium, rum, blankets, gaudy clothing, firearms, and silver have frequently been carried to semi-barbarous peoples in exchange for ivory, slaves, or other forms of wealth. Sometimes commercial traders have made three-cornered exchanges, giving up their own products for these that are known to be especially desired by the people who own the goods that they, the traders, desire; but this is still barter, rather than sale and purchase. If in these cases, however, the exchanges are made with a definite reference to some standard of value, which has the characteristics mentioned, permanence and universal demand, then they are true sales and purchases, and the commodity thus used is

true money. Iron may serve as money among a people that treasure every particle of it that can be secured, because of its scarcity and its great utility, but it would be extremely unfit in countries where its value is determined by continually fluctuating conditions of use and production.

From very early times, in the countries which have engaged in commerce, the standard of value has usually been one or the other of the so-called precious metals, silver preceding gold, as copper or iron had probably preceded silver. But the use of neither silver nor gold has been strictly continuous as the standard of value in Europe from the time of their first introduction in the early days of commercial intercourse. The conditions of their production have varied in different epochs, and their value has stood in different relations to the values of commodities in general. It has already been noted that the English colonists in America were at first without any metal which they considered suitable for a standard of value. During the Middle Ages copper was extensively used.

In various countries the exigencies of war

have sometimes driven the rulers to the use of a representative money of which the basis was not silver or gold, but national credit. That is to say, the government paid out for supplies of various sorts a paper currency which their owners accepted in exchange, in the belief that commodities of equal value could subsequently be obtained by themselves for the paper. This kind of representative money is based solely upon the confidence that the government will subsequently by taxation or otherwise obtain the commodities necessary to redeem the currency when presented. Unfortunately this confidence has not always been justified, and in times of war, when the national credit is naturally low, it is usually difficult to induce the people to accept a purely representative money. While the wars of the French Revolution were in progress, a money was issued which was based, not upon national credit, but upon lands which had been confiscated by the government and which were pledged for the redemption of the currency. This plan was even less successful than the other.

In general, we may say that the money of

civilized races has been from the earliest dawn of history either silver or gold, and that the latter has tended to displace the former wherever there has been steady econcmic progress and industrial advance. The reason why gold is a better commodity than any other to serve as money is that it possesses in preëminent degree the qualities which we have indicated as essential. The permanence of its value, guaranteed by the universality of its demand, is greater than that of any other commodity with which we are familiar. Moreover, it has certain physical peculiarities which fit it to serve as an actual medium of exchange. If we were content to use representative money only for actual exchanges, these physical properties would have less bearing upon its use as money, but the custom of using the same commodity both as a standard of value and as a medium of exchange becomes established before there is sufficient enlightenment or public confidence to permit the general use of a representative currency; and that custom is only gradually displaced even when it does not remain in full force.

The special qualities possessed in an unusual degree by gold, are shared in part by precious stones, in part by platinum, in a still higher degree by silver, and to a limited extent by bronze. But no other commodity possesses them all in such happy combination. In the first place, gold is easily recognized by tests which the ordinary man may apply. From whatever mines it may come its quality is uniform. In the melting-pot the gold of Australia and of California, and the gold mined by the Romans in the time of Cæsar, are found to have identical qualities and to be indistinguishable from each other, but easily distinguishable from all other metals. Gold then is everywhere the same commodity, and it is everywhere easily identified. Secondly, gold possesses great value in comparatively small bulk. It is possible to carry an amount which represents a great quantity of ordinary commodities, or as small a fraction of that amount as may be desired. It is easily divisible. It is possible to divide any given portion and to reunite the parts with a minimum of waste. This high value in proportion to bulk, coupled with easy

divisibility, renders gold more useful as a medium than either the diamond, which resembles it in the first particular but not in the second, or any of the baser metals, which have the second characteristic but not the first. In the next place, gold has extraordinary durability. In its pure state it is worn out by constant use, but when slightly hardened by the mixture of other metals it wears so slowly as to be nearly imperishable. Coins still exist which were in active circulation over two thousand years ago. Finally, gold is suited by its malleability for coinage, though, because of its high value, only for the larger units.

When gold and silver were first used as money it was in the form of bars or ingots. It was necessary in each transaction to weigh the metal and to test its fineness. Later they were pressed into solids of regular form, each containing specified weight and of specified quality. It was now possible to tell the value of a given quantity by merely counting these bars or ingots; or rather this would have been sufficient if the stamp or other indication of quality and weight could have been relied upon. This

was not the case so long as it was possible to cut or file away a part of the block without materially changing its appearance. This temptation was repeated with every person through whose hands the ingots passed, and it would have been strange if some dishonest persons had not yielded to it and regularly practised the debasing of the money units.

This integrity was not insured until the system of coinage was discovered and perfected. Coins were first stamped upon one side only, evidently not a sufficient protection ; then upon both sides, still leaving the edge exposed; finally, the edges were milled and surmounted by a rim. By these devices the monetary unit was fully protected. No one will mutilate a coin if by doing so he renders it impossible for him to pass it in current exchange. We have now become so familiar with the exact form of a perfect coin that we instinctively refuse to accept any which has been filed or drilled or unduly worn.

Coinage is undertaken in each country by the government and is forbidden to private individuals. The reason is obvious. The entire eco-

nomic activity of society is so far dependent upon the money which it uses that it is absolutely essential to have it reliable and uniform. The value stamped upon the monetary unit which is to serve as the standard of value should in all cases correspond to its real value. The quantity and quality of metal which it is said to contain should really be found in case it is tested. Governments have in the past taken advantage of the opportunity to debase the coinage, by putting less than the nominal amount of the valuable metal into the coin, but both national honor and the certainty of speedy detection would prevent resort to such means in these days, and the business is safer in the hands of the government than elsewhere.

The decimal system of monetary units now in use in all prominent civilized countries except England is of great commercial convenience. The ease with which our own monetary system is mastered when compared with the effort required to learn the tables of weights and measures in use, suggests the gain to commerce and industry of a decimal or metrical system of weights and measures, formed upon the same

sensible plan that has been adopted in France and other European countries.

Although some one commodity, and, under modern conditions, practically either gold or silver, must be adopted as the standard of value, it does not follow that all the coins in current use must be made of that material. Money of account has sometimes been a quite different thing from any coinage in actual use, and oftener several of the units of the money of account were not represented in the coinage, even when they were thought of in terms of the same commodity. Thus in England, during the Norman period, the only coined money of which we are certain was the silver penny, while the pound and the shilling were used as money of account.[1] Foreign gold coins were in circulation at the same period. At the present time gold is the standard of value in this country, and gold coins form a part of our circulation, but coins are also made of silver, nickel, and bronze. Wherein do these coins differ from the gold coins and their paper representatives? There would be no essential difference if the

[1] Gibbons, p. 100.

value of the metal in the different coins were in exact correspondence. In fact, however, ten silver dollars, twenty half dollars, forty quarters, two hundred five-cent pieces, and one thousand one-cent pieces, though they exchange readily for fifty gold dollars, would not be worth so much merely as bullion, and the gold in an eagle would be worth more than the metal in any one of the above mentioned quantities of money that constantly pass for ten dollars.

This is explained by the demand for money in a convenient form for change. Its marginal utility is kept high by limiting the amount coined. If coinage were unlimited, it would be profitable to melt and coin silver bullion until its nominal value became equal to its bullion value. Since coinage is in the hands of the government, this can be prevented. It is desirable that the government should use this power to give increased value to the smaller coins, — to the subsidiary coinage, as it is called, — only because there would otherwise be a constant danger that the subsidiary coins would by the fluctuations in their value come to exceed that of the standard coins. It would then become

profitable to melt down the silver, nickel, or bronze coins for their bullion, which would be more valuable than the coins. This is not illegal, as is the reverse process, and it is to prevent this that the subsidiary coinage is generally slightly overvalued in the coinage. It is much easier to prevent dishonest persons from making coins without authority, *i.e.*, counterfeiting, than to prevent the melting down or the carrying out of the country of coins that had risen in value above that of the standard money. At the same time the difference between the value of the standard and other coins should not be very great. Although the government makes a clear profit of forty cents whenever it coins sixty cents' worth of nickel or silver into pieces which are stamped one dollar, and are accepted for that amount, yet this is only indirect taxation and not its best form. Under this method all the subsidiary coins become really representative money to the full extent of the difference between the bullion and their exchange value. If it is ever desired to make them anything else than representative money, it will be necessary to call them in for redemp-

tion at the full value at which they were issued, thus sacrificing the advantage gained by their original coinage.

This is at present the actual position of our own silver coinage. The government has realized a profit of several million dollars, but the value of the bullion in each silver dollar is so low that it can be regarded only as a representative dollar and not as real money. The only difference between our silver currency and any paper representative money that the government might issue is that the silver currency is made from a more expensive material. Its value is maintained in precisely the same manner as that of any other representative money, viz., by the general confidence that the government will insure a continuance of its equivalence with real money.

No commodity has been suggested that combines the essential qualities of a standard of value with the physical properties requisite for a medium of exchange in small transactions. It will probably remain necessary, therefore, to constitute the coinage as at present from metals of different values, in quantities corresponding

to the relative numbers of large and small exchanges. To prevent the export or melting down of its small change, it will be necessary to make it to some extent representative in character by making it slightly more valuable as coin than as bullion, but any very wide discrepancy between the value of the standard money and other money in the form of coin is to be avoided, as rendering the currency unstable. If the subsidiary coin is issued in excess, it is liable to fall in value to the extent that it has been overvalued, thus causing wide-spread disturbance. In the absence of a special law requiring the acceptance of the less valuable money in payment of previously incurred debts, no one will be found willing to accept it at its face value as legal tender. If there is a law requiring the use of the cheaper money, the values of other commodities will become adjusted to the lower standard and the better money will disappear from circulation.

The enactment of a legal tender law specifying which kinds of money may be lawfully used in the discharge of debts introduces a new factor of great importance into the national monetary

system. We have seen that it is natural for good money to displace that which is imperfect or not adapted to the present condition of commerce. Whenever a commodity once used as money has become unfit for such use by the fact that changed conditions in production cause greater fluctuations in its value, or by any other cause, there is always at hand some other commodity to take its place. The law of natural selection thus insures the use of the money best suited to the particular commercial and industrial conditions.

These principles are greatly modified by the adoption of a "legal tender." Let us first suppose that only one kind of money is designated by the law as satisfactory payment of debts, but that there are in circulation both new coins of full weight, and others that are much worn or otherwise reduced in value. The law does not discriminate, but permits any properly stamped coin to be used in the payment of debts. This evidently applies only to debts due within the country. For the payment of debts incurred in international exchanges the coins are not counted but weighed. In other words, the coins pass

for their bullion, not for their face value. If a merchant has payments to make both at home and abroad, he will naturally use the best coins for export, and the poorer ones for home payment, because the coins exported are to be weighed, while those to be paid at home are only counted. When the conditions call for the export of coin, a nation will lose that part of its currency which is of full weight if there is any considerable part of it that has become light.

The same tendency is shown on a larger scale if there are two kinds of money, declared by law to be equally legal tender for the payment of debts. Here there is wider room for the discrepancy in real value, since fluctuations in the conditions of production or in the general demand for either commodity will cause it to have a different marginal utility, and hence a different value from that of the other. The better money will then be driven out of circulation by the cheaper, since either can be used indifferently at home, while, in any international transactions, the more valuable coin will purchase more commodities and will therefore be preferred. The difference in value may not be-

come apparent so long as there is no more money in circulation than the local conditions require. By limiting the total amount of the circulation, the baser coin may be given a higher exchange value than it would have as bullion, since as we have already seen it would act as representative money. The law that bad money drives out good money under the conditions specified,— an excess of currency and an established legal tender,— is ordinarily known as "Gresham's law," from the writer who first formulated it, Sir Thomas Gresham, an Englishman, who lived in the sixteenth century.

We have just used the expression "an excess of currency." It is important that we should understand in what sense the currency of a nation may be in excess of its needs, and how this condition is remedied. The money value of any commodity is generally spoken of as its price. When the price of a commodity varies we commonly suppose that the value of the commodity has varied. This is not necessarily the case. Price is a ratio, and the variation may have taken place in its other term, viz., money. If a very large number of commodities have fallen or risen

in price, and this movement is not balanced by opposite movements in the prices of other commodities, we feel reasonably sure that it is money itself and not the commodities that have changed in value. If we could suddenly increase the volume of money in any isolated community, leaving the relations of all other commodities to each other unchanged, the effect would be a rise in the prices of all commodities to correspond with the increase of volume. A day's labor would exchange for a large sum of money, but the laborer would be compelled to pay proportionately higher prices for the goods which he purchased.

If a community had no business relations with other communities, it would be a matter of comparative indifference whether prices were high or low. Their level would be determined exactly by the quantity of money in circulation at any given moment, a large quantity giving high prices and a small quantity correspondingly low prices; or, stated inversely, high prices would indicate a liberal supply of money and low prices a smaller supply. All values except that of money would remain constant, while the

value of money would be great where prices are low and less where high prices prevail. Neither the high nor the low level would afford any indication of the prosperity of the community, or of the total quantity of wealth in existence. The sole difference would be that in the period of high prices a given quantity of money would exchange for a smaller quantity of any other commodity, and that a given quantity of any commodity would command a higher price, than in a period of low prices. In the above statement of the relation between prices and the quantity of money in circulation, we have assumed that the community is isolated, *i.e.*, without any relations with other communities that would permit prices to be compared or money to be carried from one to the other. In fact, no community is in such a position, and the law of the international distribution of money acts through the medium of the price level of different countries.

By a method which seems automatic, and really is so, although it is only a phase of the general law of the distribution of products, money flows from the places where it is abun-

dant to those where it is relatively scarce. Abundance, as we have seen, is indicated by the high prices of commodities, while scarcity reveals itself in prevailing low prices. As soon as the difference is sufficient to cover the cost of transporting goods that have been for sale in the region of low prices, those who have them for sale will naturally send them to the places where better prices are to be had for them. The region of high prices offers a better market for goods and it will be sure to attract them. But it is a poor place to buy, since the prevalence of high prices will prevent a purchaser from securing as much for his money as in the place where prices are lower. Both causes operate to insure a flow of money to the region in which it is scarce until a uniformity of prices has been secured. An increase of money, in a community with commercial relations, beyond that amount which the law of international prices allows, would be a disadvantage if it did not thus bring its own remedy.

In our original statement of the relation between prices and the quantity of money in

circulation, we assumed further that the change in the volume of money was made suddenly or in such manner as to affect similarly at the same instant the prices of all commodities. It is evident that by any of the ordinary methods in which the quantity of money is increased or diminished the effect is not thus generally experienced at the same moment. Some commodities change in price more quickly than others. Some persons have fixed incomes calling for definite amounts of money each year or month, regardless of the purchasing power of the money that they receive, and there is friction of many kinds that prevents a universal rise or fall of prices to correspond exactly with the increase or decrease of the currency. The result of any change in the volume of the currency is, therefore, to change the value relations of commodities, giving some, for a time at least, relatively lower values than others. Such changes have therefore momentous social consequences.

One additional consideration of great importance remains to be noticed. Prices do not result from a simple comparison of the

quantity of commodities with the quantity of money. Money is the standard of value and performs its function by acting as a medium of exchange. It becomes the standard in virtue of its constant use as such medium. It is, therefore, not the total stock of commodities, but the number of exchanges taken in connection with the value of the commodities to be exchanged, that constitutes the demand for money. By the total volume of business is meant the value of the commodities exchanged in a given time, multiplied by the number of exchanges that are made. If the total volume of business remains constant, the amount of money required is also constant. If the volume of business increases or diminishes, the volume of money must increase or diminish in proportion, else there will be a rise or fall in prices similar to that which would accompany a diminution or increase of money with business stable. The law of the international distribution of money does not, therefore, insure to each country an unchanged quantity of money, but that the supply of money will preserve a constant relation to the amount of

work which there is for money to do, that it shall bear always the same relation to the number of exchanges taken in connection with the value of the commodities exchanged.

The shipping of money, from one country to another, is usually associated with the adjustment of what is known as the balance of trade between the two countries. The bulk of the exchanges between any two countries that form parts of the modern commercial world, is settled, not by purchase and sale for money, but by the transfer of bills of exchange. Suppose that a merchant in Liverpool, having purchased a cargo of cotton from Savannah, knows of a wholesale dealer in his own city who has sold a quantity of manufactured cloth of equal value to an importer in New York. It would involve useless expense for him to send his money to America while at the same time an equal amount of money is on its way from America to England to pay for the goods purchased in New York, if some way could be found for the two accounts to be set off against each other. The New York importer can be directed to pay the cotton-grower in Georgia

on condition that the Liverpool dealer in cotton will pay the cloth-manufacturer. If the American ends of both transactions are, like the other, in the same city the economy of this method of squaring accounts is still greater. It is probable that, in any event, there are transactions between Savannah and New York City that will obviate the necessity of sending the coin, and that the two accounts can be adjusted by a transfer of domestic bills of exchange or drafts.

The same principle that we found operating in the market to prevent the necessity of every seller finding his own buyer, again comes into operation. Special dealers in bills of exchange take the risks of purchasing from exporters the bills which will be useful in paying for goods that are to be imported into the same market. These bills are at a premium when goods are coming in faster than they are exported, since that means that gold must be shipped to cover the difference. The shipping of gold is more expensive than the mailing of a bill of exchange, and a slight advance on the amount of the transaction must be charged to cover this expense.

This state of commerce in which the value of the imports exceeds that of the exports, so that money must be sent out of the country to cover the difference, is described as an unfavorable balance of trade. If the exports exceed the imports, so that foreign exchange is at a discount and gold is flowing into the country, the balance of trade is said to be favorable. These expressions are, however, misleading. Neither condition is necessarily favorable or unfavorable to national welfare. If a country were in position to continue indefinitely paying out money for goods, it would be an indication that it was wealthy, in the possession of mines of gold, and that the marginal utility of the gold was lower than that of the goods imported. The exchange of her gold for other commodities would be a clear gain, as is the exchange of surplus wheat for any commodity that is more desired.

Unless the cause be the possession of mines sufficiently rich to make gold one of the regular and profitable exports, the balance of trade cannot remain permanently unfavorable, for the reason already explained. The scarcity of money

resulting from the export of gold causes prices to sink to a lower level than that of other countries. This will immediately check the importation of goods which have been coming, and will induce a return of money from buyers who wish to take advantage of the reduction in prices. If the reduction has been slight, either one of the two forces may alone restore the equilibrium. The shifting of the balance of trade causes money to flow now here, now there, in response to the most delicate changes in the market. With ocean greyhounds to carry any amount of money from Europe to America, or *vice versa*, within a week's time, and with the marine cable to communicate every fluctuation of the rates of exchange, the prices of commodities tend to approach the same level throughout the civilized world.

# CHAPTER XII

## THE ORGANIZATION OF CREDIT

EVERY economic relation between two members of society implies credit, or confidence that the service or commodity given by one to the other will be repaid immediately, or at some future time, as may be agreed. Credit has already been enumerated as one of the most prominent features of the social environment of man. It has been seen that barter, purchase on condition of deferred payment, the use of representative money, and the interchange of products between distant places, are all in different degrees dependent upon some kind and degree of credit. We are now to examine from a different standpoint the place of credit in the economic organization of society.

Banks exist for the special purpose of organizing credit in such a way as to make it of use in commerce and industry. The nature

of credit will best be explained by a reference to the various steps by which the institution of banking has developed. In their simplest form banks were merely associations of merchants whose money was deposited permanently in a common treasury. In the earliest historical example, the Bank of Venice, the deposit was the state treasury, and the money once deposited was never returned. But the principle will be made clearer if we suppose the money to have been placed in a vault under the care of a custodian chosen for the purpose by the members of the banking association. Each member is credited with the amount of his purchase. Whenever he desires to make a purchase with any part of the money which he has deposited, he does not withdraw it, but simply directs that the ownership shall be transferred on the books of the bank to the person from whom he has made the purchase. If this second person is a member of the banking company, the money in the treasury is not disturbed, but the account of the one member shows a larger and of the other a smaller credit than before the transaction took place. Every transfer of goods among the mem-

bers of the association is thus represented by a transfer of a corresponding amount in the credit at the bank, which takes the place of a transfer of money.

The word "credit" has here a slightly different meaning from that which we have assigned to it in preceding chapters. Heretofore we have used it as a synonyme for confidence or trust. In the present sense it indicates power over commodities secured in this instance by full payment of money in advance. It is only in this latter sense that we can speak of the organization of credit. The word would hardly have been used in this sense except for the practice of extending this power over commodities on trust to persons who had not actually advanced payment for them.

The bank, in the simple case described, obtains money from each of its members giving in return credit, or the power of drawing upon it for the amount of the deposit. Before such an arrangement as this can be made the bank itself must have gained credit; or, to put it in another way, the members of the proposed company must have gained sufficient

mutual confidence to justify their intrusting their money to the common treasury.

The advantages of this most primitive kind of banking are, first, that it reduces the wear of coin. Money will last longer properly stored in a safe vault than in actual circulation. Secondly, it makes easier the adoption and maintenance of the best kind of money. If the currency consists of many kinds of coinage, some of full weight and others worn or debased, the bank will perform a useful service for its members by reducing the value of the different deposits to the common standard, obviating the necessity for future tests at each exchange. This useful function was for a long time denied to banking institutions in England by the crown, which kept this profitable business in its own hands. Thirdly, if the members of the banking association live in different cities, considerable expense and difficulty in transporting coin is saved.

From this system of banking, of which the advantages are confined chiefly to those who have entered into a special business relation, there naturally springs a more general use of

the forms of credit to which the system has given rise. The written orders or bills drawn against the bank, when duly certified, are accepted as representative credit. They supplement the money in circulation in the manner described in the chapter on the distribution of products. Banks find that their own credit enables them to meet all demands upon them from their depositors without actually retaining in their vaults all the monies deposited. Such amounts as are not needed may be lent out at a profit. Among the most frequent loans in the early days of banking were those to the government. Sometimes the king would have urgent need for money, for which taxes had been voted, but which had not yet been collected. Those who possessed hoards of money were in position to advance it on a pledge that it would be repaid with interest at a specified time. In some instances the original loan was never repaid, the bankers receiving instead an annual interest. The famous Bank of England was founded to relieve the necessities of the government. The bank consisted of subscribers who had lent

1,200,000£ to the government on the security that out of the payments of tonnage[1] they should annually receive eight per cent, or, in all, 100,000£.[2] The bank thus organized was also to have the privilege of carrying on an ordinary banking business, *i.e.*, to receive money on deposit and to lend it at interest. Until this time in England the banking business had been chiefly in the hands of the goldsmiths. It was the practice for merchants to keep their available funds in the chests of the goldsmith, drawing it out when necessary, but usually by means of orders or bills which were used in the payment of debts and which generally passed through many hands, just as modern bank-notes do, before they were presented for payment.

Experience showed that fully one-half — or, in favorable circumstances, even two-thirds — of the funds thus collected in a large and stable bank might safely be used in outside loans. If one-third or one-half of the deposits were

[1] A tax on ships.

[2] Cunningham, *Growth of English History and Commerce*, II., 395.

kept on hand in the form of ready cash, it would be sufficient to meet all ordinary demands. The reason for this is that a depositor seldom draws on the bank immediately for the full amount of his deposit, and since there are every day new deposits there will always be some money not in danger of withdrawal; secondly, one who receives an order for money will not take the trouble to present it if he can satisfy his own obligations, or make new purchases with the order just as well as with the cash that he would obtain by presenting it. Only careful experiment and wise judgment will enable the bankers to estimate correctly the extent to which they may rely upon these two facts in the management of their business. Depositors are easily alarmed, and if there is a rumor that the bank is in the least danger of failing to meet their demands upon it, there is certain to be a rush of withdrawals far in excess of the ordinary demand. Such emergencies severely test the ability of the bank to render available its outstanding loans and investments. In times of crisis, banks have frequently failed, notwithstanding an abundance

of assets, merely because they are not in a form available for immediate use and could not be exchanged for ready cash except at a great sacrifice, if at all.

The proper basis for representative credit is not therefore wealth, in general, but those forms of wealth that can be readily realized upon when the necessity arises.[1] For a sound basis it is further essential that the available funds should be accurately proportioned to the existing stage of commercial development. Where people are accustomed to the banking system, and where banks are in the habit of coming together for mutual assistance in periods of danger and public distrust, the whole field of credit is vastly extended without corresponding increase of the reserve funds in the vaults of the banks. Where people are accustomed to barter, or to use coins in all purchase and sale, the field of credit is closely circumscribed.

The most primitive and widely diffused form of credit, antedating the rise of banks, is that of book accounts. The merchant grants a

[1] There, in part, lay the difficulty with the assignats of the French Revolution.

period of time to his customer for the payment of goods bought, himself receiving in turn similar grace from the wholesale dealer. This system springs from the greater convenience to buyers from the permission to postpone payment for irregular purchases until a future date, usually fixed with some reference to the ordinary time for customers to receive their own income; and upon the well-known trait of human nature, that goods will be purchased more freely if there is no demand for immediate payment.

The system causes a great saving in the use of small change, and it secures a somewhat more intimate relation between merchant and customer. Where pass-books or some other permanent memorandum of sales is kept in the hands of the customer, it affords an opportunity for a survey of the general expenditure which may result in judicious readjustment. But the system is subject to grave abuses. Merchants have difficulty in determining whether their various customers should be given credit, and, if so, to what extent. Dishonest debtors and others whose ventures prove unfortunate, so that they are unable to pay their accounts at

the time stipulated, bring heavy losses. As an insurance against such losses, merchants are obliged to charge higher prices for their goods. Their irregularity in collecting such debts makes it difficult for merchants to meet their own obligations. Even when there are no errors of judgment from the merchant's standpoint, in the giving of credit much harm is often done by the practice. Customers gradually find themselves limited to the particular stores at which their credit is good, and so lose the advantage from an inspection of the entire market. Higher prices are paid because of the risks and expenses of collection. Unexpectedly large accounts face the customer when the time for their presentation appears, and if they are paid promptly, the result is often an unbalanced and irregular distribution of income. The experience of coöperative stores indicates that a saving of from ten per cent upwards is possible by the introduction of a strictly cash system accompanied by economies of retail trade which it permits. This form of credit, though it has assumed vast proportions, is therefore of doubtful utility.

The next form of credit, in point of general use, is the bank account. Money or representatives of credit are deposited in the bank and drawn upon to meet current needs. The man who works for a salary frequently deposits in full the check which he receives for the month, drawing upon it subsequently for all the various bills of the previous month and for such items of the current month as require ready cash. In this way he avoids the necessity of handling any considerable share of the money which he earns. The instrument used in withdrawing money from the bank, or transferring credit to others, is the bank check. It is a very brief and informal order, bearing a date and directing the bank to pay to the person named or to his order a specified sum. The following is the usual form:

*No.* 199. NEW YORK CITY, Jan. 1, 1896.

**Centennial National Bank.**

*Pay to the order of William Jones*--------------------

*Fifty*---------------------------------------$\frac{00}{100}$ *Dollars.*

$\$ 50.\frac{00}{100}$ *Richard Palmer.*

For the convenience of the user blank checks are usually bound together, each with a stub attached with blanks for number, date, name of person in whose favor the check is drawn, balance remaining before check is drawn, amount of check, balance after deducting check, and for the amount of any deposits.

The use of checks by private persons in ordinary business transactions is much more general in England and America than in the countries of continental Europe, where it is more customary for small depositors to apply at the bank in person when money is needed. Bank credits are an economy of the circulating medium, varying in extent with the length of time between the drawing and the presentation of checks. The system secures greater safety than the practice of hoarding money at home or carrying it about the person. It enables the community to utilize a greater proportion of its spare cash, since the banks, as has been explained, need not keep on hand all the money against which depositors are entitled to draw. Most important of all, from the standpoint of the individual depositor, is the personal conven-

ience in making payments. Checks may be sent through the mail or by messenger with entire safety, since lost checks, if reported by number to the bank upon which they are drawn, may be refused payment. Checks need not be presented at the bank where the money is deposited, but will be paid at any bank where the drawee is known. A person who receives in the course of the day checks from various sources upon different banks, may deposit them all to his own credit in the bank where his account is kept.

This thorough organization of private business credit is of great economic importance. The volume of business may be very much more extensive and complicated than under a system of cash payments. It permits many transactions which would not be possible at all, if the surplus cash of individuals were not thus collected into larger funds, and if the check system did not insure easy transfers of credit. The abuse to which it is subject in the too frequent use of checks for petty amounts is easily controlled by the practice of charging a small fee for exchange. This practice is adopted

most frequently in the case of isolated banks which do not have easy communication with other banks, and especially when exchanges between the community of which it is the credit centre and the other communities with which it deals do not balance each other. In such cases the bank must send or receive money and a charge must be made to cover the cost.

The next step in the development of credit is the organization of a system by which banks may easily adjust their balances with each other. Under the check system each bank will receive during the day the checks of many other banks, and its own will be widely distributed. Since such a multitude of private persons are concerned in these transactions whose credit is continually shifting, and since some of them may have overdrawn their accounts, it is essential that each check should promptly reach the bank against which it is drawn in order that its character may be ascertained. This is accomplished through the Clearing House, or association of banks. In an incredibly short space of time, after the presentation by each bank of the checks which it has cashed for other banks, its

own liability for checks cashed elsewhere is ascertained and a statement of the balance, whether favorable or unfavorable, is presented. This balance may be settled in money or in clearing-house certificates. The clearing house is thus a bank which deals in the credit of other banks, and its economy lies in the same direction as that indicated for banks in general. The real saving of time and of the necessity for using money is most fully revealed in the clearing-house transactions of the large cities. Only a minute fraction of the total business transactions finally requires the use of money. By far the greater part consists of transfers of credit.

The word "draft" is commonly used to designate the order drawn by one bank upon another. It differs in no respect from a personal check, except that it is preferred for exchange between cities, because it is easier as a rule to learn the standing of a bank than of an individual; but even this is a question of degree only, and there are many private persons whose financial standing is so well known that their personal check would be accepted as readily as the draft of any metropolitan bank.

The organization of international credit is earlier in time than the elaborate banking system just described. The occasion for it has been already explained in the chapter on the "Distribution of Products."[1] In the complexity and vast extent of modern commerce it rests upon credit in an ever increasing extent. Bills of exchange are bought and sold as are other articles of international commerce, and their rates vary with the exportation and importation of goods. If the exchange of products between two countries is in equilibrium, exchange will be at par, *i.e.*, it will be as easy to pay a debt in the foreign country as at home. If more goods are imported so that the balance of trade, as the saying is, becomes unfavorable, the rate of foreign exchange will rise until it reaches a point at which it is more profitable to ship gold abroad than to buy the foreign bills. Inversely, if more goods are exported so that there is a tendency for gold to flow in from foreign countries, those who have payments to make abroad will find an advantageous rate of exchange, since there will be in the foreign country many persons

[1] See Chapter X.

eager to accept the bills of exchange which to that extent relieve the demand for gold.

Another form of credit which does not imply the existence of banks, though it furnishes to them a large part of their business, is the borrowing of capital on promissory notes for a stipulated time, and at a stipulated rate of interest. By this means capital is transferred from owners who have no use for it, or who desire only a regular income from it of moderate amount, to others who believe themselves to be in position to use it advantageously. This ability to borrow depends upon the credit of the borrower, which in exceptional cases has no other foundation than personal character of the kind that inspires confidence. As a rule, some security is required. The wealth pledged as security need not, however, be withdrawn from active production, so that the borrower is able to increase his available capital by the extent of his credit. Closely analogous to this variety of credit is the formation of partnerships in which capital is furnished by persons who do not otherwise engage in the proposed enterprise. Before it was permitted to loan money at interest in

England, it was very common to form partnerships of this kind in which owners of capital obtained a share of the profit. There was thought to be no impropriety in securing such return for the use of capital, since the capital shared in the risk of the enterprise. By both of these methods the immediate control of capital is placed in the hands of business men of greater efficiency and skill than its original owners possess, or, at least, in the hands of men who are willing to employ it actively in commerce or industry. There is no certainty that ability in industrial management will accompany the ownership of capital, particularly where laws permit the inheritance of wealth. The general welfare of society is promoted by a system of credit, which permits its employment to pass into the hands of such persons as find themselves able to make the best use of it. There is at present no better test of this than the rate of interest which borrowers are respectively able to pay.

Banks deal in this kind of credit as a part of their regular function. Whatever portion of their deposits is not needed as a reserve fund for

the transaction of daily business is free, for loans at interest, and their facilities for learning the financial standing of their customers gives them unusually good opportunities for lending their own capital to advantage. But the business is by no means confined to banks. Private individuals may lend directly, or they may lend their savings through special associations which pay interest upon sums intrusted to them. Most conspicuous among these are the savings banks and the building associations. Life-insurance companies also afford an excellent opportunity for the safe investment of moderate amounts. In the aggregate the funds collected by these various agencies are very large, and a heavy responsibility for their judicious employment rests upon their officers.

Two additional forms of credit may be considered together, as their economic character is identical, whatever their legal and political difference. Bank-notes and government issues of paper, or of subsidiary coinage which is valued at more than the worth of the bullion, are alike representatives of credit. If convertible instantly upon demand into standard money, they

are the equivalent of money, in the same way that checks are the equivalent of wealth deposited with the banker. They permit an economy of more expensive kinds of money and are therefore useful. For the same reasons that the banking system releases a portion of the capital of a community for productive purposes, representatives of credit virtually increase the currency by whatever amount of money need not be kept constantly on hand for their redemption. If not legally convertible into standard money, they may still circulate side by side with it, provided the quantity is not excessive. Whenever the total quantity of money, including the representatives of credit, exceeds the demands of business, the high prices which result will necessitate an exportation of money. Naturally it is the standard money that will be driven out of circulation.[1] If the inflation continues after the diminution of the currency caused by the disappearance of the money which can be used abroad, prices may continue to rise to any extent, as the international regulator of prices has been rendered inoperative. There is no other remedy ex-

[1] See p. 228.

cept the calling in of a portion of the excessive issues until there is again an equilibrium between the volume of business and the volume of money.

Bank-notes resemble ordinary promissory notes, but are without interest and payable upon demand of the holder. Where there is no arbitrary restriction upon the issue of such notes, the amount which any particular bank can keep in circulation will depend chiefly upon the average time allowed to lapse between issue and presentation for payment. This in turn depends in part upon the credit of the bank and the willingness of people in general to receive the bank-notes as money, and in part upon the requirements for business for a medium of exchange. If money is scarce, the bank-notes will remain longer in circulation, the credit of the bank remaining the same. This is equally true of government issues, if they are payable on demand, and there is ready access to the places where they may be presented. This element of the currency is a useful one as a means of assuring greater elasticity than is provided by the use of coin, and its usefulness is greatest

when the banks, which are entitled to issue notes, are most widely distributed and thus most directly in contact with actual business demands.[1]

[1] The dangers from such an elastic currency should not be overlooked. Professor Hadley thus describes what may occur. "If it becomes easy to obtain the accommodation at the banks, a large number of transactions will be made on credit. The checks which result from the creation of such bank credit furnish a medium of exchange almost as efficient as money. The over-abundance of a medium of exchange in this form will make it easier to get money than it was before. This will tend to raise prices. . . . This . . . may continue until the liabilities of the banks become disproportionate to their reserves. When the public perceives this, there is a sudden shock to confidence and a withdrawal of accommodation which causes far greater distress than would have resulted had the facilities for payment by credit been less elastic at the outset." — *Economics*, pp. 246–247.

Strato;

# CHAPTER XIII

## THE ORGANIZATION OF INDUSTRY

IN a previous chapter on the making of goods we made a broad survey of the economic activities of human society, describing the making of goods as the entire series of activities by which man secures from his surroundings the satisfactions which his nature demands. The brief account given in that chapter was from the outside only, as we might describe the industrial activity of a colony of bees. We have now gone far enough into the explanation of wealth to enable us to view the industrial organization of society from the inside and to attempt an analysis of the industrial factors.

Human industry, as a whole, is like a great stream which flows continuously under the management of man from its sources in the natural forces to its destination in the supply of the wants of man. The stream is made up of products continually changing as it rolls on,

until, at its mouth, it discharges only products. Four elements are clearly distinguishable as we watch it: the unfinished products; the physical energy which makes their motion and transformation possible; the human labor which transfers the energy to the material product, though it is itself a form of that energy; and the intelligence which directs the general course of the stream. It is clear that all of these four elements are essential to the industrial product. Let us begin with the unfinished products themselves.

As soon as they are seized upon by man, however much they may resemble natural products in appearance, they are in fact industrial products. On the other hand, however much they may resemble goods for immediate consumption, they serve a different purpose in that they are to be employed in further production. They may be regarded as unfinished or future goods. The satisfaction which their production was intended to meet will not be realized until the commodity which is to be consumed has actually been produced. The plough, the wagon, and the reaper, in so far as they are used

in the production of wheat, may be regarded as wheat not yet ready for consumption. They have no reason for existence except as they bring nearer that for the production of which they were themselves produced.

To be clearly distinguished from these future goods are the present goods which minister directly to the satisfaction of human desires. Food, clothing, and fuel used in protection against cold are obviously present goods. Commodities which satisfy higher desires — as paintings, ornaments, and articles of household furniture — are of the same kind.[1] The spoken oration, the musician's notes, and the plunge of the surgeon's knife are goods in the economic sense, and furnish excellent examples of the class of goods under consideration. The goods which have ultimately taken form as present goods, have been ât various stages of their production future goods. They have become present goods through the operation of productive agencies. They were products; they have become produce.[2]

[1] Clark, *Philosophy of Wealth*, Chapter I.

[2] Patten, "Fundamental Idea of Capital," in *Quarterly Journal of Economics*, Vol. III., p. 193.

The future goods are of two distinct kinds. There are those which will reappear visibly in the finished product, as wood, cotton, flax, and coloring matter in cloth, leather in shoes, etc.;[1] and those which will not thus reappear, as coal, bleaching material, lubricants,[2] and the buildings which have been required in the production. Goods of the first-mentioned class are themselves on the way to the goal of consumption. Those of the second are aiding in the transformation of other future goods into present goods. If the produce of industry under consideration be bread, the labor that has been expended in its production has taken form on the one side, at different stages, as plant food, wheat, flour, and dough; and the other as improvement on land, agricultural machinery, wagon, railroad, flour mill, and baker's oven. The latter are fundamentally of the same economic character as the former.[3] Future goods of the first class are called by Clark passive capital,

[1] Andrews, *Institutes of Economics*, p. 49.

[2] Ibid.

[3] A plough is so many loaves of bread partly made, while a loom and the engine which moves it are partly made coats; that is, society having determined to make some more bread

those of the second active capital.[1] These products of human industry which owe their existence and their value, not to their power to satisfy immediately human desires, but to the great fact of the efficiency of serial production, are future goods.

Though material commodities only are ordinarily included in the term "future goods," it should be pointed out that there are other productive agencies which are entirely analogous in their action. Andrews refers to some of them as "unembodied inventions," and cites the knowledge of chemical combinations used in the arts, etc. The patterns of a stove manufacturer, often very valuable, are of course future goods; yet if the patterns themselves were destroyed, they could usually be replaced at nominal expense by one who remembered their form. The result of an invention, whether of a pattern, a chemical combination, or a mechanical process is only under very exceptional

and coats, is so far along in the work that it has made a plough, a loom, and an engine to propel it. —Patten, see p. 263.

[1] "Capital and its Earnings," in *Publications of the American Economic Association*, Vol. III., No. 2.

circumstances wholly embodied in a physical form. The improvement of agricultural land may take such tangible form as to be easily recognized as a material product — a future good; or it may consist simply in an improvement in the quality of the soil. Labor may be expended in the erection of agricultural stations in order to increase production. The result is then clearly a future good — a product of industry. Essentially the same thing is done when labor is expended in the training of laborers to greater efficiency. The qualities of man are improved as were those of the soil in the illustration above given. Finally, labor may be expended in the production of future goods, such as machinery, tools, and factory buildings. It is better to reserve the term "future goods" for these material commodities, using the broader term "capital" to designate the results of all labor exerted before that which performs the final act of transforming the future into a present good. Capital is embodied labor, but it is labor expended beforehand in order to increase the produce. Viewing the production of wealth, rather than its consumption, looking

not upon man's pleasures, but upon the industrial organization — we thus get a clear idea of capital and its function. It does not include the means of subsistence in the hands of their final consumers, or any commodities which will directly satisfy the wants of man and are desired by men on their own account.

Whether capital is a productive agency, is a question of economic theory over which a severe struggle has continued to the present day. The least that can be claimed for the productive power of capital is that the productive agencies are far more efficient where there is a relatively large stock of future goods in existence, where the serial method of production is in full vogue, where a portion of the labor necessary to satisfy a man's desires is exerted long in advance of the period when the commodity is to be consumed.[1]

It is evident that a society which maintains

[1] The value of the unfinished commodity, the product of industry, depends upon the distance which separates it from the finished stage. When products are exchanged for produce, it is always at a certain advantage to the holder of the former, provided he is able and willing to sacrifice thus a lower degree of pleasure in the present for a higher in the future.

a judicious proportion between the quantities of future and present goods will add thereby greatly to the satisfactions which it may enjoy. But it is essential further that the various classes of future goods should bear to each other a certain proportion determined in each case by the requirements of the industrial organization. If the object be to bring coal to the consumers, the future goods called into requisition are, among others, mine machinery, road bed, and rolling stock. Individual producers sometimes put too large a portion of the available energy into the construction of railways, leaving not enough free for the production of machinery or for the mining industry itself.[1] The expenditure of labor too long beforehand is not to be justified. Production will be most efficient when the quantities of labor devoted to the various classes of future goods are most nicely adjusted.

The distinction between circulating and fixed capital has long been current and is useful for

[1] Panics have sometimes ensued when too much of the national capital is in railroads. It becomes under such circumstances both fixed and specialized. See next two paragraphs.

certain practical purposes. Circulating capital consists of such future goods as fulfil the whole of their office, in the production in which they are engaged, by a single use; fixed capital of such as exist in any durable shape, and the use of which in production is spread over a period of corresponding duration.[1] Much of what is ordinarily classed as circulating capital is, however, excluded entirely from the category of future goods, and consequently of capital as above defined. Nothing is more common in the political economy of the wage-fund period than discussions as to whether laborers suffer from the transformation of circulating capital into fixed capital. This discussion has no meaning unless we understand by circulating capital mainly subsistence. But food and clothing are present goods — not capitalistic products — and they should not be reckoned as capital. The line between fixed and circulating capital has always been a very uncertain one, and since the line which separates future from present goods can be more distinctly drawn, the utility of the older distinction is questionable. If it is re-

[1] Mill, *Principles of Political Economy*, Bk. I., Chapter VI.

tained, and we seek an illustration in steamship transportation, we would place the vessel itself, as well as the permanent offices and the docks of the steamship company, on the side of fixed capital; while the fuel consumed in the steamer, the supply of provisions necessary for the voyage,[1] and all those portions of the equipment of vessels, docks, or offices which need to be continually renewed, furnish the circulating capital. The paint renewed at every port would figure in the circulating capital of the steamship line, though it would be less "circulating" than the fuel which lasts in the furnace but a few minutes.

Specialized capital, by which is meant those future goods which, to avoid waste, must be carried forward to a particular goal, as printing-presses to the production of books and newspapers, steam engines to some form of production in which steam power is required, and steel to the form of edged tools, rails,

[1] Until they are prepared for the table and actually placed before passengers, when they become present goods, and constitute an integral part of the "good" for which the passage money has been paid.

steel-plate, etc., is distinguished from free capital, which may with almost equal economy be employed in any one of many different kinds of production. This distinction is also purely relative. A factory which can be transformed at small expense into one suited to the production of a different commodity, is less specialized than one which, if the transformation were necessary, would require a greater outlay in effecting required changes. Individuals suffer at times from changes in demand which leave them in possession of specialized and useless capital. Production will be in this respect most efficient when changes are so successfully anticipated as to prevent at such points a too great preponderance of specialized capital over that which is free.

If capital in its origin is not a result of saving, but rather a result of the adoption of a new and more efficient method of production, then it is evident that it is increased, not by reducing consumption, but by turning the productive capacity of society into new channels. An addition to the stock of capi-

tal is an incidental result of the new activity, not its cause. In apparent conflict with this statement of the relation of capital to the growth of industry are the first two of Mill's four fundamental propositions concerning capital, viz.: that industry is limited by capital; and that capital is the result of saving. But the word "saving" is used by Mill in a technical sense, denoting not necessarily abstinence or privation, but merely "excess of production over consumption." The essential element is even here the activity which calls the new products into being. It is of course implied that they then be devoted to the end for which they were produced and not to some other, — that they be "saved" from loss, waste and unproductive consumption; but it is wholly irrelevant to say that they are a result of this saving.[1] Non-destruction cannot be regarded

[1] "If a child asked whence chickens came, and was told that to produce chickens he must refrain from eating eggs, we should be justified in regarding the answer as excellent advice, but as an exceedingly absurd explanation. We are not a whit better satisfied by the train of reasoning which makes saving the original cause of the formation of capital." — Gide, *Principles of Political Economy*, Amer. ed., p. 139.

as the origin of anything. Nor is it true that industry is limited by capital in any sense which is inconsistent with the proposition that sufficient capital is always forthcoming when the natural forces and human energy are directed into more productive channels. The limitations are imposed by the lack of such energy and non-utilization of such forces. It cannot be too strongly insisted upon that under normal conditions, *i.e.*, when the quantities of the various kinds of capital are produced in the right proportion, the increase of capital involves no reduction in the quantities of present goods produced, that there is no diminution of enjoyment, that there is no necessary privation or sacrifice other than that connected with the labor involved in the production. Looking upon the industrial organization from a social and purely objective standpoint, we may recognize clearly enough that these advantages from the use of capital are not purchased at the cost of any reduction of enjoyment. At every stage, capital — that is to say, machinery, raw materials, unfinished goods, improvement on land, increased abilities

in men — these are produced by the coöperation of the human and the natural forces. They do not add to man's satisfactions directly, but neither do they subtract from them. Indirectly but continuously they do aid in satisfying desires. Contemporaneously with their own production they are changing into present goods, or are increasing the quantities of present goods, at man's disposal. Since the very beginning of this process there has been no necessity for saving *as an act of production.*

Saving is the means by which the individual may increase the amount of his own income, the means by which he may influence the distribution of wealth. It deserves attention, therefore, in the study of distribution. Unfortunately there is a large class made up of those who are unwilling or unable to save for themselves, who do not adapt themselves to the more efficient methods of production in vogue, but steadily exchange their share in the future goods which they help to produce for such as are able to satisfy immediate wants. While society consists thus of two classes, those who save and those who do not, the distribution of wealth will be

greatly in favor of the former class. This income which they receive, because of the failure of the latter class to act in conformity with the newer conditions, is so much deducted from the total product of industry before any division among those who have actively coöperated in production can take place.

Money is circulating capital of a unique kind. In any particular production the money employed fulfils the whole of its office by a single use, yet the money itself may exist in a durable shape, and its entire service to society may be spread over a period of longer duration than that of almost any form of fixed capital. In the popular mind the significance of money in the industrial mechanism is usually grossly exaggerated. Its total quantity does not measure in any sense the aggregate wealth of the country, nor does it stand in any fixed relation to its stock of capital. The importance of the money of a country is somewhat greater than that of the weights and measures in general use, but its function does not differ materially from theirs. Money is used in exchanging goods, as railway cars are used in transporting them.

Both money and cars are capital, but neither has any exclusive or peculiar claim to the title. When it is said that money is needed to develop the resources of a particular section of the country, it is almost always capital of other kinds than money that is really lacking. If the supply of money is really short, it will be attracted from other countries as soon as prevailing high prices show that there is a deficiency. But there is no automatic method by which the supply of capital may be increased, since a high rate of interest does not necessarily accompany a deficiency of capital. If the deficiency makes itself felt as an obstacle to the development of some industry, then the rate of interest will rise in such a way as to attract the necessary capital. The need of future goods is recognized only gradually and on the actual initiation of new enterprises. That they are provided is an indication of the healthy growth of industry. The increase of capital augurs well for further development. An increase of money beyond that amount which the law of international prices allows is a disadvantage, and brings its own remedy. Society should be much more

ready, therefore, to bring about the conditions that call for an increase of capital than to increase artificially the money supply.

We may now turn our attention to the second of the productive energies enumerated at the beginning of this chapter. Physical energy is supplied by nature in an inexhaustible amount. No economist thinks, therefore, of attaching any importance to it as a productive agency. But it so happens that most of its available forms are dependent upon one of nature's gifts, viz., land. Industry can be carried on only upon land, and its products all find their origin in land, for by the term we include so much of the crust of the earth as furnishes to industry any of its original materials. There is no getting access to the natural forces under our social institutions except through land ownership or rental. Figuratively speaking, therefore, land is the economic form of physical energy. It is nature's contribution to industry. It includes rocks and soils, timber, grass, and running streams, — all the forces of nature utilized by man in any branch of human industry. The materials of industry are drawn from land, the

possibility of industry depends upon the continued utilization of those forces which are embodied in land and its products.

If at any given time an economic society has at its disposal much unoccupied land suitable for industry, it has not merely standing room for a larger number of workers, but also the physical forces supplied by the sun's rays which fall upon it, by the coal which may lie buried beneath it, by the germinating power of its soils, and even by the animals which feed upon its grasses and grains. The possession of land — at least the privilege of working upon it — is the first consideration of economic society. Without it man cannot exist. Any part of the entire product of industry short of that necessary to bare maintenance might be exacted by those who control it if they themselves could become independent of other equally essential agencies, — an impossible condition.

It has been shown that land considered as a productive agency is a more comprehensive term than land in the ordinary use of the term; but in certain other directions it is more restricted than in popular usage. It does not

include any industrial product. When we speak of land as a source of income, we usually include many improvements, some recent, and others, it may be, very remote. Land, sharply distinguished from capital and other productive agencies, however, cannot include other than natural products and forces. As a French economist has said,[1] we need some ground to stand on, rather more to lie down on, vastly more to feed our flocks and build our factories. We need further the coöperation of the various forms of physical energy, and this, too, depends upon the possession of land.

An increase in the supply of land thus understood must always accompany any considerable extension of industrial activity, but it by no means involves necessarily the opening up of new land areas. Any discovery which leads to a new development of physical energy from the natural products, and forces now available, is for all practical purposes an increase in the supply of land. Increased command over the resources of nature on a given area permits an extension of industry, just as does the occupation of new

[1] Gide, *Principles of Political Economy*, Amer. Ed., p. 99.

land. Except in new countries where good land is still unoccupied, an increase of land means, as a rule, a better use of the possibilities of production lying in the land already occupied, but not utilized in the most productive manner. Partly by the discoveries of science, partly by the diffusion of skill, this process of increasing the usefulness of land goes constantly forward, and may be indefinitely continued long after there is no longer any additional land area for occupation.

The two remaining productive agencies are labor and intelligence. Those two are inseparably connected in man, as land and capital are inseparably connected in external nature; but they are distinct in function. Muscular activity presupposes a certain degree of rational direction, while the highest degree of mental activity remains subject to the necessity of receiving bodily support, in which is included muscular action. The term "labor" is sometimes used in a broad sense to designate all human exertion directed toward productive ends. Even in its broadest use, however, labor cannot include the mental faculties themselves; it can refer only

to the bodily activity which is a condition to the exercise of those faculties. Intelligence is clearly to be distinguished from the labor which it directs. It is true that a man's labor must be guided in part by his own intelligence, but it introduces needless confusion to class intelligence, therefore, as a form of labor. In the study of production it is important to discover, not how many agencies are united under the control of the individual producer, but what agencies there are. Not how many different sources of income are open to a single person, but what is the explanation of the possibility of income, — what are the active forces that unite to produce wealth.

Man's energy, both mental and physical, is to a considerable extent dependent upon outer conditions. These must not be ignored. The efficiency of production is determined in very large part by the amount of human energy which capitalists and laborers bring to their task. Attention has already been called to the indirect influence of climate on production through its influence on man's energy and industrial activity. It is a matter of common

experience that greater endurance, heartier response to unexpected demands, and more vigorous prosecution of new and uncertain ventures may be expected from a people whose climatic surroundings are healthful and stimulating than from those whose lives are spent under unwholesome conditions. Greater energy is possible where the working day is of reasonable length, where the laborer has a direct interest in the product of his industry, where the State is active in promoting favorable conditions of life. The degree of energy which we may expect to see displayed in any community depends thus partly on outward physical conditions, partly on social and industrial conditions which the people of the community themselves create. Everything which contributes to the hopefulness and cheerfulness of the laborer, everything which adds to his physical strength and his mental power, because they have these results, deserve mention in any enumeration of the productive agencies. If they are found to be incapable of modification by man, they should be intelligently utilized. If they are found to be within the sphere of man's influence, they should be sys-

tematically developed and encouraged to the end that the highest degree of human energy may be secured.

The real importance of labor has been much obscured by two equally persistent, but equally vain, attempts to unduly exalt its significance. The attempt has been made, first, to find in the amount of labor that has been expended upon the production of an article an explanation of its present value; but the attempt has failed to supply either a satisfactory economic theory of value or a practical guide to its measurement. It has been attempted, secondly, to show that wages are, *or should be*, in proportion to the actual sacrifice involved in the labor for which wages are paid. Without anticipating further the discussion of distribution and of individual income, it may be said that the sacrifice at most measures the cost of such labor to the laborer, not its value in the market, and can account therefore only for a minimum share in distribution — a minimum to which any considerable body of producers seldom sinks.

Labor, then, — bodily exertion involving some degree of sacrifice, either of pleasure or comfort,

— is an essential in all wealth production. Labor in all its forms either produces or resists motion. Displacement of material bodies, or a rearrangement of their parts, is the utmost that labor can accomplish.[1] It is seldom that the entire series of motions which the production calls for is accomplished by human labor alone. When bodies have been placed in the proper situation, natural forces operate through machines in the same way as through the human body. Invention is continually transferring new portions of the series to machinery, but the necessity for labor remains. The increased use of machinery has not, and probably will not, cause a sufficient increase in the amount of wealth produced to meet the new wants developed with social progress. We may look for fewer hours of labor each day for those whose working day now greatly exceeds the limits of efficiency; we may look for a release from brutalizing forms of labor; but it is scarcely possible that there will be a decrease in the

3trator

[1] Man has no other means of acting on matter than by moving it. — Mill, *Principles of Political Economy*, People's Ed., p. 16. See also Gide and Fawcett on this subject.

aggregate demand for labor, a decrease, in other words, in the advantage which society will realize from the possession of a high degree of human energy ready to be applied to industrial labor.

Looking again upon labor as a moving of material bodies, it will be seen that its efficiency depends upon: first, the quantity of motion produced; second, the precision of the motion; third, the certainty that the motion will be produced at the right time and with sufficient rapidity; fourth, the certainty that the motion will be in the right direction, or, more generally, that of several possible motions exactly the right one will be made. The quantity of motion which the individual laborer can produce — the number of times that he can repeat the series of motions for which his position in the industrial mechanics calls — depends upon the quantity and quality of his food, on the clothing and shelter with which he is provided, and on the other conditions of a high degree of human energy, some of which were enumerated in the paragraphs on that subject.

Precision, promptness, rapidity, and the de-

gree of judgment necessary to guide the workman in the selection of tools, and of the right use to be made of them at the moment when they are to be used, —these are qualities which require training and systematic encouragement. We are not concerned here with the intelligence necessary to invention, to discovery, or to that kind of superintendence which requires frequent decision of new questions, least of all with the intelligence necessary to initiate new industries or to modify seriously the methods of production employed in those already established; but with the qualities necessary in any efficient labor, even when directed by others. Whatever may be said of the higher types of intelligence, it is certain that by proper training these qualities may be developed in every class to some extent. The industrial efficiency of the nation would be vastly increased if by schools of manual training; by technological schools; by courses in the public schools in cooking, sewing, carving, drawing, singing; by systematic courses in athletics; and by every other possible means the future workingmen —that is to say, all women and men — were

taught more completely the use of their bodies, were trained to keep their organs under better control, and to move them with grace and precision, and, when necessary, with promptness, rapidity, and force. The attempts at this kind of instruction have been numerous, but seldom continued for a sufficient time, or introduced over a sufficient area to afford any test of its efficacy. We need a State policy of popular education, framed with this pressing industrial need in view, applied persistently without too careful regard to local prejudices, and including adequate provision for systematic training of the teachers in the courses which they would be expected to add to those already given.

It is not sufficient for wealth production that motion be imparted to particles of matter, even if that motion be well adapted to accomplish its immediate end. What bodies shall be moved? What degree and what kind of motion shall be applied? What combinations of motion are necessary to produce the desired commodity? These questions must be carefully decided before the point is reached when labor can be applied in production. Discovery

of the essential relations between the various productive agencies, invention of new processes, and guidance of the forces utilized are the three principal functions of intelligence in production. A modification of the economic environment suddenly leaves too much capital in one branch of industry, and leaves unused opportunity for profitable investment in another. It is the function of intelligence to discover these facts and to cause a transfer of capital and productive power to the new channels. Intelligence finds new forms of potential energy in nature, discovers methods by which waste may be reduced, discovers new sources of raw materials and new markets for products. Industries which were in favorable position in every respect for successful competition, have at times failed entirely because of their inability to dispose econonically and promptly of the commodities produced. This fact would be considered only in the study of the distribution of wealth, except for the loss entailed on society by this waste of productive power. An added degree of intelligence, applied at the right place, would complete the

group of agencies operating in these industries and render the entire group effective.

The activity of intelligence always takes the form of rendering a decision, as that of labor takes the form of producing motion. But just as the efficiency of labor depends on many circumstances affecting the bodily condition of the laborer, so the soundness of the judgment rendered depends on the physical condition of the person who renders it. The part which intelligence plays in production assumes greater importance as the ideals of society become higher and more complex; as the stability of credit, the appreciation of future welfare, the influence of moral and religious motives, become more firmly established. These conditions, favorable to a higher grade of intelligence, are as capable of cultivation as are the conditions favorable to efficient labor. It is possible for society to produce men physically capable of energetic and efficient labor; so, also, it is possible to produce men capable of organizing and directing their own industry. Those who place themselves in opposition to liberal public provision for general higher edu-

cation, and for such elementary and secondary instruction as shall lead up to it by an easily trod path, are favoring a monopoly of the most important productive agency in the hands of the few whose private funds can supply the necessary intellectual training. There is no necessity for such a monopoly. The capitalists and the class endowed with superior intelligence have been identified in economic theories because, as a matter of fact, the State has usually provided in so niggardly a manner for general education of even an elementary character that none others than the children of wealthy capitalists could be placed in a favorable position for the development of their intellectual powers. Even to this day in England, where the older political economy arose, although there are excellent elementary schools, and though a university education is comparatively inexpensive, there are no regular means provided to prepare even the brightest student of the elementary school for university study.[1]

[1] An important educational problem in England is the reorganization of secondary instruction in such a way as to bridge over this period. A Royal Commission issued in 1895 a com-

We need a more aggressive State policy, not merely in elementary education, but in university teaching as well. The systematic extension of university teaching to every community, by means of public funds, is the only completely justifiable policy of higher education for the State to adopt. This would not secure intellectual equality for its citizens, but it would practically insure that all the widely varying abilities of the communities should be brought to light, that fewer of the intellectual powers of society should be wasted, that intelligence in production should be contributed by hundreds, where it is now contributed by scores. Intelligence is developed under a system of inequality of opportunity by the unsatisfactory method of placing monopoly gains in the hands of a small class, thus bringing opportunities of culture to its members. It would be developed more naturally and completely under a democratic system, which, by taxation of monopoly gains, by reduction of waste, and, if

prehensive report on the subject. In America the better class of High Schools connect the elementary school directly with the State Universities.

necessary, by a voluntary sacrifice of present comfort on the part of all citizens, would provide means for placing adequate educational facilities within the reach of every citizen.

We have now completed our brief survey of the individual productive agencies; we have seen that, strictly speaking, the only agencies are the physical forces which produce motion, and the motives which influence man's will, leading him to cause certain motions to be made rather than others; yet under the license of figurative language we may classify those agencies as land, capital, labor, and intelligence: *land*, since there is no getting access to natural forces except through land ownership or rental; *capital*, since the ownership of future goods is essential to the present producer; *labor*, since human labor supplies whatever physical force it is impossible or impracticable to secure from land and the agencies controlled by its owners; *intelligence*, the most convenient collective term for the human faculties, active in production and determining its amount and character.

In actual industry we see these agencies

only in combination. We see also different persons combining their efforts as producers. It is easier to classify the persons than to classify the agencies. A rough classification of producers as capitalists and laborers early becomes popular and is retained in ordinary use. After other qualities than those necessary for the accumulation of capital and for the application of physical strength to materials become prominent, this classification becomes inaccurate and misleading. Attempts to rectify it by differentiating the landlord and then the entrepreneur, or manager of industry, from the capitalist class afford only a partial remedy, for to an increasing extent individual producers unite in themselves the control of two or more agencies, and especially those who furnish labor are seen to be capable of furnishing also the capital, the intelligence, and such control of natural forces as the industry in which they are engaged may require. We are compelled finally to abandon the attempt to analyze production by classifying producers as persons, and to resort to a study of the efficient agencies without regard

to the arrangements, whether legal or physical, which place the control of those agencies in one place rather than another.

The organization of industry begins with the earliest forms of industry. As new features develop, they appear within the organization. There is no industry except organized industry. But the organization becomes more complex as society develops new wants and increases its productive power. The most prominent features of this more complex organization are: first, an extension of the division of labor; second, an increased localization of industry or territorial division of labor; third, a tendency to production on a larger scale, and, fourth, the development of specialized machinery and skill.

Organization is possible without very extensive division of labor or differentiation. Producers may merely combine their powers to accomplish results which would be impossible without combination. But when the stage is reached in which a person confines himself to one occupation, instead of attempting to supply his wants largely by his own direct

efforts, new methods of increasing productive power become possible. Much practice makes possible a high degree of dexterity. The experienced proof-reader, for instance, detects the smallest error, even the slight imperfection in a letter which the ordinary reader would overlook. With many repetitions the most difficult manual operation becomes easy, and if the workman cares to improve his skill, becomes more nearly perfect. Invention and discovery are encouraged by the subdivision of labor, and what is more important the inventions are more likely to be made by those engaged in the industries. In this way the possibility of a reward for invention becomes an inducement to more painstaking work. The division of labor further allows a better utilization of all grades of labor, giving to each so far as a proper division extends, as nearly as possible, the exact duties for which his strength and abilities thus qualify him.

The localization of industry brings somewhat similar advantages. In some cases particular communities have developed the industries which they have established and fostered to a

higher degree than would have been possible elsewhere, and the total wealth product of the world is doubtless increased by such territorial subdivision. The causes by which the localization has been brought about are partly physical and partly the deliberate results of man's choice. "The iron industries of England first sought those districts in which charcoal was plentiful, and afterwards they went to the neighborhood of collieries . . . The Sheffield cutlery trade is due chiefly to the excellent grit of which its grindstones are made."[1] The beet sugar in Germany, however, and the potteries of Trenton, N.J., owe their existence to different causes. A slight disadvantage in physical conditions is more than compensated by the superior management and the more intelligent labor of those engaged in the industries.

Combination and subdivision of labor do not exhaust the possibilities of organization. Both

[1] Marshall, *Principles of Economics*, Bk. IV., Chapter X. Marshall suggests as other causes the patronage of a court; and among the modern influences tending to favor the localized industries he mentions the cheapening of the means of communication, the establishment of subsidiary industries, etc.

for the individual and for communities there are limits to profitable subdivision. The principle of diversification of industry is the last to be consciously adopted, but it has its own obvious advantages, which have been too frequently sacrificed from failure to consider all features of the industrial situation.

By the organization of industry is meant not merely the separation of producers into trades, and into minute portions of trades, but, further, the bringing together of the various productive agencies in such a way that they become really operative and efficient. It is the name applied to a series of positive actions. A farmer, by years of saving, succeeds in getting control of a certain amount of capital, or he borrows from some one who has saved it, the capital he needs; he selects a farm suitable to the crop which he expects to raise and within reach of his market, he employs the necessary laborers, he purchases the necessary implements, he chooses the seed that is to be planted, he directs how much labor shall be put on each field, how many times the corn shall be ploughed, what fences shall be built, when the crop shall be harvested, where it

shall be offered for sale, in a word, he organizes industry. With the extension of the division of employments the organization becomes more complex, but the division and the organization are not identical. The organization may be very highly developed in industries which, from their nature, do not allow a minute division of labor, and the organization may be very weak at certain points, though a thorough division of labor has been introduced. Those improvements in the organization of industry which prevent misapplications of capital or energy materially reduce the costs of production. As the organization of industry becomes more intricate, it becomes at times more sensitive, and a reduction of costs may often be secured by such changes in the forms of organization as shall secure more perfect insurance against loss.

The survey of the organization of industry should lead to a clear conception of the source of the productive power of society. Modifying the phraseology of Mill[1] to bring it more nearly into conformity with the terms employed in the preceding discussion, and reversing the order of

[1] *Principles*, Bk. I., Chapter VII.

enumeration that the sources may appear in the order of their importance, we may conclude that the productive power of society will be great when there exist: (*a*) active coöperation of society, especially of the State, and consequent judicious direction of the social forces; (*b*) conditions favorable to a high degree of energy, enterprise, and moral trustworthiness; (*c*) serial methods of production — the outward indication of which is the presence of relatively large quantities of future goods; (*d*) possession of abundant material resources.

# CHAPTER XIV

## PROPOSITIONS CONCERNING INDUSTRY

*The productivity of land depends on the variety of human wants.* We have seen that the increase of land demands increased knowledge concerning its productive possibilities, rather than increased area. Every new item of knowledge brought to light by practical cultivators or by experiment stations is the equivalent of added acres. A change in the methods of cultivation, which permits two crops in the year where there had been but one, is equivalent to the doubling of the land area. It does not follow that the total product will be doubled. This depends upon the remaining limitation, as of capital or labor. But the contribution to the product from land will be doubled.

Another condition of the productivity of land lies in the variety of wants. Just as the division of labor is limited by the extent of the market, so the productivity of land is limited by

the variety of products desired. The positive statement of this truth is that every increase in the variety of wants puts some land to a better use and so adds to its productivity. Oftentimes the increased variety in consumption, which thus favorably influences industry, springs not from the discovery of some commodity heretofore unknown, but from the removal of some prejudice which has prevented the general use of a familiar commodity. Fantastic or fashionable whims have often foolishly retarded the full development of agriculture by demanding products which can be produced at home only with great difficulty; or by demanding foreign products which can be procured only by ruinous exploitation of home resources in the production of one or two commodities for which an export market has been found. The proposition, however, does not refer to a diversity of wants within the country merely. The diversification may come equally from new foreign demands. Whatever enables a community to put its land to better use by cultivating crops for which its peculiar properties are more exactly suited, is of economic advantage.

*The soil is a result of gradual accumulation, and must be renewed either by natural or by artificial means.* The soil is to be looked upon as a fund of productive qualities capable of exhaustion. In some favored localities nature continually renews the fertility of the soil by carrying new elements to replace those withdrawn as plant food. Fine silt and organic matter are brought on the wind, or by inundating rivers in even greater quantities than are used up, so that soil increases each year in depth and fertility. Fields which can be plentifully supplied with manures may be similarly enriched by the agency of man while yielding annual crops. In general, after lands have been cultivated for a longer or shorter period, depending upon the degree of their original fertility, it will be necessary to supply those elements which either were originally scarce or have become so by cultivation. Western prairie lands have in some instances yielded a single annual crop for thirty years or more in succession, but this soon becomes a wasteful exploiting of nature's accumulations, and a limit is finally reached when the land must be put to other uses or allowed to lie

fallow. An intelligently selected rotation of crops, with a timely supply of the particular elements of soil that are found to be lacking,[1] will keep the land in good working order indefinitely. It thus tends to become more like a factory in which materials are supplied and handled in strict accordance with the results expected, and less a mere game of hazard played out by the chances of the distribution of plant food.

*Cultivation, the shifting of population, the cheapening of transportation, and other social changes tend to equalize the productivity of different areas.* Primitive society finds greater differences in the productivity of the different parts of the land at its disposal than a society in which there is a well-developed consumption and diversified industry of the kind that we have come to regard as normal. The decrease of rent gradually effected in the course of ordinary cultivation through the improvement of poorer soils is first noticeable. The cheapening of transportation and the spread of population to new areas has a profound effect in the same

[1] See p. 39.

direction. Lands which were little valued because of their remoteness from centres of population, become of great value as population spreads from its centres, or new centres are established. The opening of canals and of other waterways, the building of railways, and the improvement of country roads break down the advantages possessed by the lands immediately about the markets, and add to the resources of the community by rendering all good lands more readily available. The chief original distinction between good and indifferent lands is based not always on any real differences in their capacity to yield useful products, but often rather on differences in their location, their accessibility, and their capacity to produce those few commodities that are originally most in demand. These latter differences are of the kind that disappear rapidly when population increases, transportation facilities are introduced, and wants are diversified. The general effect of such progress is therefore to equalize the productivity of different areas. In other words, the productive power of land depends chiefly on the character of its population.

*A large part of the expenses of agricultural production are due to the initial obstacles.* There are certain permanent expenses of production in agriculture as in other branches of industry. But in a progressive community there are others of a temporary character made necessary by the obstacles, some of which were referred to in a preceding paragraph. It is for this reason that the price of food is relatively higher in a new and progressive country. Extensive methods of cultivation, using up recklessly the productive qualities of the soil, may for a time conceal the real conditions, but as soon as there is any feeling of responsibility for the maintenance of the soil on the part of those who are already in possession of desirable lands, and a determination on the part of others to bring new lands into cultivation, or to bring them within effective reach of the market, the special expenses connected with the overcoming of obstacles shows itself. The prices of products must rise high enough to cover not only the ordinary expenses of production, but to reimburse producers for the extraordinary expenses caused by these obstacles. A strong

argument for collectivist action has been drawn from these facts. If society as a whole will remove the initial obstacles, and open new areas to cultivation where it can be done by digging, irrigating canals, draining marshes, etc., the yield of agricultural products may be vastly increased without the rise in prices and rents made necessary by the ordinary method. If the whole matter be left to individual initiative, the prices of food and other products must rise to a point sufficient to cover the expense of both ordinary production and initial enterprise, and that not merely on the new products, but on all others, however cheaply produced, on the lands already cultivated.

*The greatest return from the land of the nation will not be secured when it is all under cultivation.* That there may be a conflict of interests between society and certain of its members is shown nowhere more clearly than in the treatment of forests. One-fourth of the land of a country, in the opinion of an eminent authority, should be in forests. When a fourth of it has been taken under cultivation, therefore, any further increase of product should be sought,

not by the cultivation of more land, but by a more intensive culture of that which is already under plough. Forests are sometimes destroyed for the sake of the timber, but loss from the cutting down of forests for timber is insignificant in total amount when compared with that resulting from ruinous forest fires, the result of mere carelessness or of the lack of spark extinguishers on railway locomotives. Such fires destroy the young shoots and sometimes entirely kill out many of the best varieties of trees. Scientific forestry yields in the long run a far greater supply of timber than a reckless system of extermination, and there is the great argument in its favor, that it admits a selection for forests of those lands that are unsuited to ordinary cultivation. The sources of streams, and, to some extent, their entire courses, including the smaller tributaries, should be protected by forests. If deprived of their natural protection, they dry up quickly in hot weather, and rains have no other effect than to cause sudden and severe inundations rushing immediately to the sea. The total quantity of rainfall is diminished. To the forest lands gained in this way, the mountains

and hillsides which are too steep or rocky for cultivation, and a considerable part of the ordinary arable land, must be added to secure a proper relation of forest to cultivated land.

*Land will not yield its greatest return when used for a single crop.* Every crop has its own particular proportion of various elements of plant food, and its own peculiar physical and chemical effect upon the land on which it is grown. The elements upon which it draws most heavily, or of which there is at the outset the most scanty supply, will become exhausted long before other elements need to be replaced, and the particular physical treatment required for the crop, such as ploughing, harrowing, or drilling, repeated many times without variation, becomes injurious. When a field is thus worn out, it may be put to a totally different use, pasturing, for example, or the elements found to be lacking may be artificially restored. The land, however, may be kept to its full productivity, and its productivity may even be steadily increased by a suitable rotation of crops requiring different treatment and drawing at least partly upon different elements in the soil. Just

as the human being requires a smaller quantity of food if there is a variety of food elements, so land will yield a greater agricultural product if there is a judicious variety of crops.

*Capital is a result of serial methods of production, is valued because of forethought, and is preserved by abstinence.* The physical basis of capital is the serial method in which industry is carried on.[1] Many persons working together, though unconscious of any partnership in their labors, find that they can produce more efficiently by separating the process of production into many parts, some directly, others more remotely, connected with the object. Notice, for example, how any good is produced. Certain persons make tools; others make the tools by which these tools are made; others cultivate the crops necessary to provide food for all who work, whether on the land or in the factory; others work at the numerous parts of the long series of processes required to clothe the workers; still others, finally, wearing the clothes thus produced, living on the food thus provided, using the tools furnished by the workers who were themselves

[1] See p. 65.

provided with tools made by others, and drawing in countless other ways upon the capital of society, are able to put the finishing touches on the particular good in question. Capital is a result of this method of industry. Value is attached to these intermediate goods because of the forethought of man in thus taking initial steps a longer or shorter time in advance of the final act of production. Not because the unfinished or intermediate good can satisfy a want, but because there will be wants in the future which can be supplied only by the production of these goods now, does it become worth while to produce them. As the future wants become more vivid, future goods rise in value as compared with present goods, and the sacrifice involved in a proper distribution of labor between the production of present and the production of future goods becomes less. At the same time the actual advantage which comes to society through the possession of capital goods becomes greater. Even if the members of society should eventually place as high an estimate on future goods as on present goods, so that there would be no room left for interest,

there would still be a physical advantage in serial methods of production, and the community which followed those methods to the fullest extent would have so great an advantage over their rivals that there would be little danger of their falling back into more primitive methods.

It is essential in this system of industry that capital goods should be produced. It is no less essential that those into whose hands these goods come should refrain from converting them into present goods and thus use up in personal enjoyment the wealth which is capable of aiding in industry as capital. The man who is in possession of a given fund may, if he so desire, spend it in gratifying his immediate wants. He may purchase a fine residence, build a yacht, or squander it in more reckless ways. He may, on the other hand, invest the fund in some industrial enterprise, putting entirely beyond his reach, so long as he continues the investment, the enjoyment which he might have obtained as an alternative. If his investment is successful, he obtains a share in its product, and this he may exchange regularly for such present goods as it will purchase.

The giving up of the satisfactions which might have been obtained by the expenditure of the original fund is called abstinence, and the share in the product which is accepted in its stead is interest. It is sometimes said that interest is obtained as a reward for abstinence, and this is true from the individual standpoint, but it is not a complete explanation of interest. The part which capital actually plays in industry and the reason why value is attached to it are a part of that explanation. Capital is created by the adoption of serial methods of production, it is valued because of the importance which society learns to attach to future wants, and it is preserved by abstinence.

*The increase of capital does not involve decrease of present goods.* This proposition may seem to be in contradiction with that of the preceding paragraph, but it is really a direct consequence of it. When we look only at the accumulation of capital, we see that it is made by the constant sacrifice of present enjoyments. This process of abstinence or saving may be carried so far as to bring great personal hardship. Every increase of capital does involve abstinence from present

enjoyments, and so a decrease in the number of present goods. An individual may spend a long lifetime in saving, adding the annual increase to his original fund, and enjoying present goods no further than to supply the bare necessities of life. But the true effect of capital is seen only when we look at the industrial organization as a whole. When the serial processes are carried to completion, they do result in a larger product, and the final product is present goods. The individual capitalist may add to his fund each year, but if so he only increases the final product, and if he merely keep his fund intact, it is still contributing to the industrial output to such an extent that there will ultimately be more present goods than if the capital had not been saved. This difference between the amount of the product before and after an introduction of additional capital has no direct relation to interest or the share of the capitalist. That share is governed by the demand for and supply of capital; by the ratio between the need for saving and the amount of saving which members of society are ready to make; or, in still other words, by the ratio between the estimate of pres-

ent and that of future wants. It is possible to knit stockings by hand with only so much capital as is represented by a set of knitting needles. When the industry is transferred to a factory, and an extensive capital is invested, the relative part played by capital is enormously increased. We might safely conclude that nine-tenths of the product is now due to the employment of capital in the industry. But the capitalist may or may not obtain this share of the product. This will depend upon the quantity of free capital seeking investment.

Looking at the entire industrial system, it is clear that every increase of capital judiciously invested adds to the total product of industry and so to the number of present goods. The increase of capital is gradual, and therefore the increase of present goods is continuous. The true conception of the capitalist or man who saves is not that of a man who does without things, but rather that of the inventive workman who is constantly finding better methods, using more efficient tools, accomplishing greater results with the same personal cost, so that there is a constant surplus fund for the accu-

mulation of capital. The whole of this surplus, it is true, might be spent on immediate pleasures, and in that sense personal abstinence is necessary; but we should make a serious mistake if we supposed that capital is saved as a rule by any cutting down of pleasures previously enjoyed, and that in any given community those who save are, as a rule, compelled to deprive themselves of pleasures enjoyed by the thriftless.

*Although capital is a permanent fund, yet capital goods must be constantly replaced.* One additional fact concerning capital requires statement. It is partially expressed in the third of Mill's fundamental propositions on capital, where he says that capital, though saved, is consumed. This paradoxical theorem Mill regards as one of the most elementary truths of political economy. He who saves must spend as freely as he who consumes, but he purchases future instead of present goods. He builds a factory instead of a yacht. He employs laborers instead of servants. He studies the wants of other consumers instead of his own. He makes goods instead of consuming them. He

does use up materials and so productively consumes them, but only that an augmented value may reappear in the product. Any wealth which lies entirely unemployed is for that length of time not capital. It is a part of the idea of capital that it should be continually active. It may appear inactive at intervals, because some industrial processes are intermittent in their nature, and the product may ripen but slowly. Except by miscalculation, no capital is consumed except productively, and no capital is productively consumed except in such ways as result in an increase of value. The concrete goods are completely destroyed or worn out, but new goods of greater value have taken their place. The capitalist cannot retain his wealth except by turning it over, changing its form, substituting new goods for old. As the river remains while the water of which it is made flows on and is ever replaced, as the body continues its existence though its parts are continually renewed, as the State remains though citizens are born and die and are succeeded by others, so the capital fund is permanent though capital goods must be constantly replaced.

*The efficiency of industry depends upon an economy of skill.* The great object of the division of labor is to put each person at the task for which he is best fitted. The strongest indictment which can be brought against the existing social order is that it does not invariably secure this result. It is possible that the same objection can be urged with equal or greater force against any other general plan for the organization of society. We may expect, however, that society will become less and less indifferent to the social loss from this source. The aggregation of workers in factories where differences in capacity may be observed, the gathering of merchants in markets where differences in commercial efficiency are exposed, and the improvements in transportation which make easier comparison of industrial qualities and of industrial products — all promote the economy of skill. But the chief agency in securing it is the modern organization of industrial enterprises on a large scale under the control of captains of industry whose resources enable them to scour the earth in search of persons best fitted for each part of their work.

No doubt favoritism, compassion, and chance still play a certain part in the selection of men for the different grades of work; but real efficiency is more and more the determining factor.

*An efficient industrial organization demands that it be controlled by its most efficient members.* The truth of this is so obvious that demonstration is unnecessary. It is the main reliance of those who defend the competitive features of the present system. It is probable that the competition does secure a very high degree of success in the selection of the best organizers and managers of industry. But perhaps sufficient attention has not been given to the features which prevent effective competition. Important municipal franchises are sometimes administered, not by those who can make the best use of them, but by those who are ready to bargain for them on corrupt terms. By inheritance capital passes from the hands of those who have accumulated and have probably used it wisely, into the hands of less worthy descendants or relatives who squander or misuse it. The surplus which springs from the growth of population, the development of markets, the progress of society,

passes into the hands of those who have made lucky ventures or secured property rights which grew up under older conditions and which should be modified to meet the social changes. In all these ways beneficent competition is defeated and the interests of society suffer. Whether by the present competitive processes, modified by such positive institutions as exist, or by a system of more complete *laissez-faire*, or by a system of State socialism in which positive regulation by the State would be extended to cover the whole field of industry, it should be the aim to place and keep in control of the industrial mechanism the persons who can manage it best. What reward should be given for such service is a different question.

*Scientific discoverers and inventors have a place in the industrial organization.* The work of inventors and of the large class of scientific experts who bring to light new information is to be classed with that of other active members of the industrial organization. Geographical explorers, chemists, geologists, biologists, no less than machinists, electricians, or physicians, are all needed in the performance of the vast

task given to the human race, viz., the conquest of nature for the more complete satisfaction of all human wants. It is not essential that the inventor should be conscious of making any direct contribution to the social product. His motive may be the mere satisfying of intellectual curiosity. Many manual laborers feel no concern or interest in the completed product, and the ordinary motive is often the day's wage. A contribution to the product is, nevertheless, made by his labor, and there is no discovery of science that does not have its social significance.

*The diffusion of knowledge increases the productive power of society by tending to equalize industrial opportunities.* Among the various causes of industrial inefficiency none is so glaring as inequality in the opportunities offered to develop latent powers. There is no real freedom of competition between individuals, one of whom has been put in possession of important information which is withheld from the other; or one of whom has had opportunities of developing his mental and physical powers which have been denied the other. The chances of securing the best work from all, and of finding the right men

for difficult and important places, vary directly with the diffusion of knowledge. Teachers and those engaged in disseminating knowledge through books, newspapers, lectures, or other means are indispensable industrial agents. Directly and indirectly their contribution to the social product is very great.

*Industrial coöperation is possible only where producers are put on an equal footing by a complete diffusion of knowledge.* It is generally held that the goal of industrial progress is the securing of a generous product by the labor of those who are able to supply their own capital, materials, and directive enterprise. The present division of society into classes of those who save and those who pay others to do their saving for them, into classes of those who own land and those who pay rental, into classes of employers and employees, is thought to be only a stage in the general development of industrial qualities in all classes. There must always be organization of some sort, and some method must be found of vesting authority in those most competent to exercise it. But there is no reason in the nature of the case why land,

capital, and management of industry should not belong ultimately to the laborers. There is no insuperable obstacle to the success at present of any industry organized on that basis except the unequal diffusion of knowledge and mental training. Any group of persons now has the perfect legal right to establish such an industry, and in fact there are some such industries in successful operation. Industrial coöperation cannot become the rule until producers are put on an equal footing by the complete diffusion of knowledge throughout society. All persons will not show equal capacity, but every genius will have an opportunity for healthy development and no one will be denied opportunity for full mental growth because of unfavorable circumstances. We shall learn to exploit to the full our national intellectual resources as we now attempt to exploit our natural resources.[1]

[1] Professor E. J. James, Address before the American Institute of Education, at Bethlehem, N.H., 1891.

# CHAPTER XV

## RESTATEMENT OF FAMILIAR PRINCIPLES

*The division of labor increases the efficiency of production.* The first great treatise on political economy, Adam Smith's *Wealth of Nations*, opens with a discussion of the advantages of the division of labor introduced by an illustration drawn from the manufacture of pins. He shows that in a small pin factory employing only ten men, where the subdivision of work was therefore not carried to its fullest extent, there were turned out daily some 48,000 pins, or 4800 for each workman. Mr. David Wells brings the illustration down to our own times by citing a modern pin factory in which three men manufactured daily 7,500,000 pins, or 2,500,000 for each workman. It would probably be quite impossible for a man without the coöperation of others to produce even a single pin. Even in occupations which have not been so much modified by the introduction of machinery, the

same effect follows the subdivision of the work into distinct branches, each workman confining himself to one of these branches. This great economy arises chiefly from three sources. The laborer acquires manual dexterity by innumerable repetitions of the same operation. Every day his work becomes easier, and if there is sufficient motive to prevent a corresponding lessening of exertion, this greater dexterity is accompanied by increased product. If an occupation is of a kind that does not permit laborers to specialize in this way, but requires each person who follows it to learn a larger number of different kinds of work, it is not likely to advance so rapidly as others in which the specialization takes place. Farming is an occupation of this kind. Men cannot confine themselves to sowing, cultivating, harvesting, or threshing, because these come at different times in the year. Neither can a farmer produce corn or oats or live stock exclusively, because land requires a rotation of crops, and it is more advantageous to combine several kinds of agricultural products.

Allied to this advantage of increased dexterity

is another. Close and long attention to a single occupation enables the workman to think of new methods to discover improvements in machinery, and even to invent new tools and machines. Not many of the greater inventions, such as the cotton-gin, the steam engine, the sewing-machine, or the electric motor, have been made in this way. They have come rather from the patient investigations of a class of specialists whose energies were concentrated on working out an idea conceived while watching the work of others. But thousands of minor inventions and discoveries have been made by workmen in the manner indicated. This is much more likely to be done where men are employed in piece-work than if they are paid by the day; but only where there is some assurance that at least for a time the workman will be permitted to enjoy the fruits of the increased production caused by his discovery. A steel manufacturer relates to the writer an instance in which the output of a plant was doubled in a period of ten years without any increase in the capital or in the number of laborers, by the introduction of piece-work, and a policy of liberal encourage-

ment to workmen for such improvements as they might make.

The third advantage which deserves emphasis is the opportunity given by the division of labor to secure a good adjustment between the work to be done and the capacity of the worker. Those who have special strength or special facility in any particular direction may gain the greater rewards which come from doing a work in which they have little competition. Many other occupations are open to persons of less skill or strength who would not be able to make their living at all where the subdivision of labor had not been carried so far. There are other important advantages, such as the constant employment of tools and machinery, the saving of time necessary to pass from one occupation to another, the multiplicity of services arising from so arranging work that a laborer may serve many persons as easily as one, as, for example, in the delivery of parcels or letters, and from the multiplicity of copies, as in the printing of books or of calico.

It is usually held by economists that the division of labor is limited by the extent of the mar-

ket, and this is the case wherever the market does not permit the further limit imposed by the physical conditions of production to be reached. In many branches of industry the product is so large that all advantageous subdivisions are already made. If the plant is extended, it is simply by duplicating processes already in use. If the existing organization of the pin industry permits men to make 2,500,000 pins in a day, it is probable that a reduction of the demand to one-half the present amount would not materially change the method of manufacture, at least after a short interval. But a point would eventually be reached where a lessening of the demand would have that effect, and would induce the manufacturer to return to more primitive methods.

*Freedom of trade is essential to a good industrial organization.* Political economy has been for a century and a quarter a weapon in the hands of those who have labored for greater freedom to the individual and to industrial classes to make such exchanges and such contracts as seemed to them advantageous. It has been repeatedly pointed out that restrictive laws,

and laws framed in the interests of particular classes, are to be condemned, not solely for their injustice, but because they prevent the co-operation of productive agents on such terms as will insure the largest product. There is no doubt that government action is often successful in giving higher values to certain commodities or services, and in depriving other commodities of a part of their natural market value. There is no doubt that governmental supervision often brings an ultimate social and economic gain. But the activity which is demanded in one period by the state of society is often continued into another and different set of conditions, when it becomes pernicious. The history of legislation in enlightened countries has been largely the repeal of antiquated restrictions and the removal of burdens that have become unjust and economically disadvantageous. The mere repeal of a bad law, or the enactment of a good one, is often insufficient. What is needed is that there shall be such enlightenment of public opinion that the freedom decreed or permitted by the legislature shall be in fact enjoyed. The present condition of the labor

organization movement in some of the cities of America is a case in point. There are nowhere laws making such organizations illegal. But there are many industrial establishments which do not permit their employees to form organizations. It might be difficult to secure to workmen the freedom in this respect which their interests undoubtedly require without intrenching upon the equal freedom of employers to discharge such of their employees as are for any reason unsatisfactory. It might, however, be done in the case of all corporations enjoying public franchises, as a condition of the original granting of the franchise. The economic principle involved is that the social product is largest and of the greatest social utility, other things being equal, when none of the necessary factors of production labor under undue restraint, but when all are free to work in such combinations as seem most profitable.

The abolition of special privileges of manufacture, such as were once granted by royal favor to companies or individuals, of laws forbidding the exportation of certain products and the importation of others, and of the usury laws,

sufficiently illustrate the radical improvement secured by the fuller recognition of economic freedom. General regulations prescribing the conditions on which trade and industry may be carried on do not necessarily violate the principle. "They fix the plane above which competition is to take place,"[1] and apply alike to all. They interfere unjustifiably with industry only when they modify the distribution of wealth already produced. It is a different thing to establish a permanent social barrier at a certain place to which industry adjusts itself as to a river or mountain in the physical environment. The abolition of sweat shops, for example, works no hardship so soon as it applies to the entire competitive field. Even saloon keepers are apt to favor laws requiring saloons to be closed on Sundays and at certain hours of the night as soon as they are convinced that the requirement is to be universal.

*The interests of society are promoted by each member seeking his own interest.* The principle that the individual by seeking his own economic interest, by engaging in whatever occupation

[1] H. C. Adams, *The Relation of the State to Industry.*

and pursuing it in whatever way will bring to him the greatest reward, is thereby promoting the general interests of society, has sometimes been transformed into the doctrine that the interests of the individual and of society are always identical. There are many exceptions to the rule that the interests of society and those of individuals coincide; but the general principle, that the individual in promoting his own economic interest does thereby serve the interests of society, underlies our whole social organization. Acceptance of this principle does not exclude the consideration of other forces besides self-interest for the promotion of the interests of society. Reliance may be in part upon self-interest, and in part upon civic, religious, or social motives. Any of these may come into conflict even with enlightened self-interest, and it may then be a question whether the act which is prompted by motives of self-interest will bring a benefit to society greater or less than that prompted by a different motive. All that can rightly be claimed for the economic motive of self-interest is that it does on the whole work advantageously to society, and that there

is general harmony of individual interests with those of society.

*The benefits of improved production tend to diffuse themselves throughout society.* No improvement, discovery, invention, or increase of wealth materials is of advantage to its owner alone, however little he may care for the interests of others. An increase of capital benefits first the capitalist in whose hands it is accumulated, but by the very fact of its employment in industry other factors are made more productive, and so share in the benefit. An important invention, even when patented, is of social advantage. It diminishes the cost of production, or utilizes new materials, or permits the employment of new energy, or otherwise reveals hidden sources of wealth. The patent cannot possibly secure all of the advantage to the inventor, and it generally secures but a very small part. Books and newspapers and schools and travel increase the rapidity of circulation of such advances in production, but without these aids the operation of economic law would insure a similar result. When a laborer rises from the ranks to become an employer of labor, he promotes the interests

of his fellow-laborers if he is efficient and successful.[1] When laborers add to their product by more energetic and intelligent effort, they not merely increase their own wages (provided they are free to seek their own interest), but they also confer a benefit upon consumers — among whom other laborers form the chief part — and permit a more advantageous investment of the capital engaged in the industry. It is through changes in consumption that the greater part of the process of the diffusion of benefits takes place.[2]

*The value of commodities coincides with the expenses of their production.* The classical doctrine that cost of production regulates the value of freely produced commodities has been replaced in our discussion of value by the newer explanation which traces value to marginal utility. Cost has been used only in its more accurate sense of actual expenditure of energy or loss of vitality occasioned by active participation in industry. In this sense it is evident that there is no constant relation between cost and value,

[1] See general law of distribution in Ch. XVII., especially p. 395.

[2] See Chapter VI., "Propositions concerning Consumption."

and it is also clear that values can be measured far more easily than costs, and that they can be more easily compared with each other. In order to ascertain the cost of a commodity, it would be necessary to make actual inquiry of all persons, capitalists, or laborers who have contributed to it directly or indirectly; to ascertain whether they have made their contribution at any personal cost to themselves, deducting any other benefits that resulted from the same activity.

When writers have attempted to establish an equivalence between cost and value, they have not taken the trouble to ascertain actual cost, and so they have not really used it at all in the comparison. They have ascertained only the value, and from this have attempted to deduce the cost. What is possible, however, is to compare the value with the expenses of production to an individual employer. From his own standpoint the employer looks upon all the contributions of his fellow-producers as so many commodities or services to be secured on as favorable terms as possible, and the sum of his investments in the particular commodity must

stand in some definite relation to the value of the commodity at the time when he places it upon the market. Self-interest would prevent any producer from continuing indefinitely to produce commodities at a greater expense than is warranted by their value. If, on the other hand, the value is greatly in excess of the combined expenses of production, so that there are unusual profits to be made in the manufacture, an increased competition of others will be attracted, resulting in so great a production that marginal utility will be reduced by the increased supply. If it is practicable to secure concerted action among the entire body of producers of a single commodity, so that competition is abolished, the value may be kept considerably above the expense of production. This is most easily accomplished in the case of commodities, like coal or oil, where the supply is regulated not so much by the will of the original producers as by those who control transportation facilities. But it is sometimes accomplished even with commodities which would ordinarily be classed among those "freely produced." There is always present a potential competition, but the

initial obstacles in the way of making it effective allow a wide margin for the rise of values above expenses. A railroad which taps an extensive coal-field may long retain control because of the expense of building a new road and the difficulty of securing a charter and right of way. Profits may be much higher than in other industries without being sufficiently great to justify the building of a competitive road.

Many other exceptions and reservations would be necessary to the validity of the law that value coincides with expense of production, if in the latter term we included all the original investments. But in real life any unusual gains are rapidly capitalized, and any new investor finds them added to his expenses as well as to the value of his product. The railway shares, for example, increase in value to correspond with the earning power, and the equivalence of expense and value is thus secured by increasing the expenses rather than by reducing value. The general rule for freely produced commodities is that value tends to equal the sum of expenditures necessary to bring a product finally upon the market, including in the estimate of expenses

an allowance for ordinary profit to the final employer or dealer.

*There can be but one price for a given commodity in a given market.* By the market, is meant the area within which there is free competition of buyers and sellers, and within which the conditions are such that both buyers and sellers may readily compare prices. Wholesale and retail prices are not equal because the wholesale market is distinct from the retail market, even in the same cities and towns. Retail buyers are as much cut off from the wholesale sellers as if they were in a different country, and the only ordinary comparison of prices is among retail dealers who add to the wholesale price, representing the entire expense of the product up to that point, an allowance for the expenses of retailing, including the labor of subdividing parcels, exposing for sale, carrying the stock until sold, insurance, and profit. This calculation is made as a means of estimating the success of the retail store, rather than as a means of deciding what the retail price shall be. The successful merchant does not fix his prices by adding a fixed and uniform percentage to the cost of his goods.

He does not hesitate at times to allow their price to fall below cost, if it is clear that their marginal utility has fallen since his stock was purchased; and, on the other hand, he takes advantage of favorable conditions to sell far above the cost to himself; or, stating this in the reverse manner, he buys freely when there is an opportunity to secure a stock at very much less than the goods can be sold for at retail.

No one understands better than the retail dealer that values, or retail prices, are to be governed by marginal utility — by the relation between the present public desire and the supply offered. He will make a very small profit or none at all on certain classes of goods and a very high profit on others. In each case it is the state of the public mind that is the deciding factor. The natural price is as definitely fixed as the cost, though an individual dealer may for a time offer his goods above or below it. Local variations may occur for special reasons, such as the popularity of particular locations, but there is a general tendency toward an equality of price throughout the market, whatever the commodity and whatever its cost.

*Industry is limited by capital.* This is the first of Mill's four famous propositions. Industry cannot be carried on until the materials of industry and the means of support for those who are to engage in it have been provided. We live, not upon the proceeds of our present industrial activity, but upon that of the past. Tools are made, buildings erected, roadways constructed, and food and clothing produced, all in response to immediate demands for those commodities; but buildings and roads are made of such permanent materials that they can be utilized in future production, tools are made to use again and again, food and clothing are provided in sufficient quantity to support and clothe producers in every branch of industry. Industry cannot be carried on unless there is capital to be devoted to these preliminary steps. The amount of industry is fixed by the quantity of capital available and actually used, not merely by the quantity available; for though industry is limited by capital, it does not always reach the full limit. Capital may be temporarily unemployed, and very often it is not employed in the most remunerative manner.

The chief bearing of this proposition is in the development of another — *that a demand for commodities does not constitute a demand for labor.* A demand for particular commodities may cause industry to be diverted from an old channel to the new. It may displace certain laborers by others. But it does not create a demand for additional labor unless it provides the necessary capital upon which the new labor depends for materials and support. Since industry is limited by capital, it cannot expand to meet the new demand unless additional capital is furnished or the amount needed withdrawn from other enterprises.

*Fixed and circulating capital must stand in a definite relation to each other.* Capital is a collective term for all those products of industry which are used in further production. Some of them, like seed, materials, and merchants' stocks of goods, are used only once, after which they must be replaced by others if the production is to continue. Others, like tools and buildings, are used many times, or continuously for long periods before they need to be replaced. The first class constitute the circulating capital, the

second the fixed capital. The proportion between the two classes is governed by a multitude of conditions. The amount to be paid out in wages, for example, varies greatly in different branches of industry, because of the longer or shorter time which must elapse between the initial steps of production and the final sale which reimburses the capitalist for his investment. It sometimes happens that by making extensive permanent improvements it becomes possible to turn out an equal product with much less circulating capital. Less capital is needed for current production because the permanent features of the industry are improved. The increase of fixed capital at the expense of circulating capital may bring serious disturbance. The gradual increase of both is assured with the progress of society through the introduction of serial methods of production. To preserve a judicious balance between them is essential to prosperity.

*Profits tend to a minimum.* It has long been held that profits, including in that term the entire remuneration of employers and capitalists, constantly tend to diminish because of the in-

crease of capital faster than the opportunities for its remunerative employment. It is obvious that neither a fall nor a rise in the rate of profits, if we include two such diverse elements as interest on capital and the returns obtained by employers for their participation in industry, can be continuous. The ability to discover new and profitable fields for investment will show itself only the more promptly if a low rate of interest renders it comparatively easy for one who has organizing ability, but no capital at his disposal, to secure the amount needed. Profits in the narrower sense are therefore very apt for a time, at least, to show a tendency directly the reverse of interest. There is abundance of historical evidence that there has been a considerable fall in the rate of interest, limiting the term to the return for capital. The tendency is checked by the opening of new fields of investment, for these are of benefit, not merely to the organizer of industry who discovers them, but also to the capitalist whose capital thus finds new employment, the landowner whose materials are called into requisition, and the laborers whose coöperation will be necessary to any utili-

zation of the new fields. But the increase in the number of the men who can find or make such opportunities, especially if they are of a similar type, tends to reduce their own rewards by their competition with each other. Eventually profits as well as interest will tend to a minimum, though not with the same uniformity.

*Wages vary with the expense of subsistence.* The relation between wages and the standard of living has been explained in another chapter. Whatever margin we recognize between the laborer's income and the bare cost of subsistence, it is clear that there is such relation between them that total wages must be increased to meet any general and permanent increase in the expenses of the necessaries of life, and that any decrease in those expenses will permit a decrease of wages without either diminishing population or setting in motion the forces which produce a change in the standard of living. Employers of labor have therefore correctly regarded a cheapening of food and clothing as desirable from their own standpoint. Wages are to them merely one of the expenses of production, and anything which reduces

house rent and the expenses of living in any other respect permits a corresponding reduction of wages. Not every such lowering of the expenses of living is followed by a lowering of wages. But any conditions which enable laborers to maintain high wages, under such circumstances, would have enabled them to secure an increase if the expenses of subsistence had not decreased. It is simply evidence that there was a favorable trend in their direction which they had not realized. And, indeed, the greater part of the very great increase of wages during the past hundred years has been brought about in precisely this manner. It is much easier to keep nominal wages at a given point, when that has come to mean higher real wages, than to increase at the same time real and nominal wages. A chief factor is a united and vigorous sentiment in favor of a definite demand, and this is more easily created in behalf of wages which have already been nominally enjoyed. Fortunately the cheapening of commodities has continually expanded the purchasing power of both money and labor.

*Population tends to increase faster than the*

*means of subsistence.* The doctrine of population, ably propounded and defended by the English economist Malthus, has been the subject of much controversy. Its statement has usually been coupled with specific remedies for the calamities which the unchecked tendency of population to outrun subsistence would bring. Both these remedies and the doctrine itself have been savagely attacked, but it cannot be said that the doctrine has been overthrown. Where there is a full sense of responsibility for the welfare of children on the part of parents and of the community, so that marriages do not take place earlier than is warranted, and the desire to provide for the welfare of offspring furnishes a constant spur to effective industry, there exists what Malthus calls the preventive check to overpopulation. Where there is no such feeling of responsibility, nature steps in to prevent a too rapid increase by such positive checks as pestilence and famine. Communities are given their choice of positive or preventive checks. The preventive checks are not always or usually exercised consciously. Through the development of the family and of capital, social

instincts are created which hold in check the tendency in population to increase faster than the means of subsistence and so to press hard upon the food supply.

*The application of labor and capital to land is subject to the law of diminishing returns.* A certain amount of work can be expended upon a given piece of land with a maximum return per unit of labor or capital. If additional work is done the result will be to increase the product somewhat, but not in the same proportion to the increased expenditure of energy. If, for example, $1000 a year is spent on a farm with a result that 5000 bushels of corn are produced, it may be that $1200 on the same farm would produce 6000 bushels, in which case the additional $200 has brought as good a return as the original $1000. In some instances, where the land has not been cultivated to its full capacity, it might even bring a larger proportional return. But it is obvious that a point would be reached after which this would no longer be true: $1400 spent on the farm would probably yield more than $1200, but not one-sixth more, or 7000 bushels, as it should if

the ratio were to be continued. The return may be put at 6500. This ratio would rapidly diminish as additional amounts of work are applied. Each addition would add something, but not so much as previous applications had done. It is this fact of diminishing returns in agriculture that has given color to all the speculations of the English school of political economy. It has been regarded as the corner-stone of the science. Upon it have been built the law of population, of wages, of profits, of rent, and of social progress. The niggardliness of nature has been held responsible for the limitations experienced in the increase of prosperity and general happiness. Whether the law is really of this character we shall inquire more minutely in the chapter on the "Obstacles to Social Progress."

*Rent arises from differences in the fertility of soils.* When soils of different grades of fertility are cultivated for the same market, the value of the crops must be such that those who cultivate the poorest soils are as well rewarded for their labor as producers of equal abilities in other branches of industry, or, putting it in another

way, capital expended in the cultivation of the inferior soils must be as well remunerated as capital in general; otherwise the inferior soils will be thrown out of cultivation and the diminished supply will again bring prices up to the point where they can be cultivated with the ordinary profit. If, however, prices are high enough to enable crops to be produced at a profit on the poorest soils in cultivation, every piece of land which is more fertile or better situated will yield a surplus revenue measured in amount by the extent of its superiority over the poorest or marginal land. This surplus is economic rent. Land cannot be said to yield a rent unless after paying wages and interest and profits there is a clear surplus to which neither the farmer nor his laborers nor the capitalist from whom he may have borrowed his capital can establish a claim.

This surplus exists whenever there are differences in fertility, unless the poorer soils are cultivated at an actual loss. This may no doubt be done temporarily and even for many years, if there are personal reasons for keeping up an estate or sinking each year capital with-

drawn from other sources. Such a policy is unsound except in so far as such motives induce keener activity and so lead to the creation of new capital. Ordinary economic motives would prompt the withdrawal of capital from the unprofitable cultivation. This would usually involve merely a change of products, and probably such change would affect only the less productive portions of the farms or estates in question. Careful examination would show that there are even in small farms some fields the cultivation of which pays more liberally than that of others. The margin of cultivation is kept lower because of the natural reluctance to radical change in location, in crops, or in methods of cultivation. The conception of rent has been extended to cover differences in productive capacity, whether arising from fertility or from peculiarly favorable location. Rent is paid on lands other than agricultural, in accordance with the same general principle. A minimum rent is fixed by the relative fertility of the soil for agricultural purposes, but the rent may rise indefinitely from this point in accordance with the desirability of location.

*The payment of rent does not increase the expenses of production.* This follows from the manner in which rent is determined. The expenses of production are greatest on the land which pays no rent. The value of the commodities are not greater on account of this greater expense, since there is but one price for commodities in a given market. Rent is paid on the superior soils, because the value is great enough to leave a surplus, after meeting the ordinary expenses of production. The value is not high because rent is paid, but rent is paid because the value is high enough to warrant it. Rent is, then, an effect, not a cause, of the high value. If the value were to fall, the result would be to diminish rents, but it would be done indirectly. The fall in value would render unprofitable the cultivation of the marginal lands, and this cultivation would cease. The margin would then be at a higher point, since the rent of a given piece of land is determined by the difference between its yield, and the yield of the land at the margin of cultivation, and since the subtrahend is now larger than before, while the minuend remains the same, it follows that the remainder,

constituting rent, will be smaller. This result can be permanent only when the total demand has actually diminished. With an increasing, or even with a stable population, the demand constantly augments, and rent will not fall in the manner just described, except on lands suited only for the production of some particular crop which has been displaced by others of greater utility.

There is, however, another manner in which rents may be made to fall, viz., by the improvement of the poorer lands. A rise in the margin which results from the fact that poorer lands have been improved more rapidly than the better ones, is accompanied, not by a lessening, but by an increase, of the total supply. But the effect is to diminish rents since it lessens the differences in soils, and it is upon the differences that rent depends. Farmers spend more on the improvement of the less productive portions of their farms, and public internal improvements are directed toward the bringing into cultivation of soil not now available. The general effect is a diminution of agricultural rents. In the cities the improvement of transportation facili-

ties, the clearing out of the slums, the tendency of population into the suburbs, have a similar influence upon land rents. The receipt of rent, then, is due to the possession of superior soils at a time when the cultivation of inferior soils is essential to the supply. The degree of superiority over the poorest land in use is the measure of rent. It is a surplus revenue and does not add to the expenses of production.

*The profits of employers add nothing to the expense of production.* Profits, in the more accurate use of that term, which excludes interest, insurance, and the like, is a surplus revenue like rent, and is determined in a similar manner. The credit for first working out the analogy between profits and rent belongs to Francis A. Walker. A manager of superior ability takes charge of an industry in which there has been no profit, and by his better management creates one. He discovers economies, secures materials at less expense, introduces better methods, finds a better market, and in general adds a net surplus to the product of the industry. As there are soils of different grades of fertility, so

there are employers of different grades of ability. Those at the lower margin carry on their industries with at least as great expense in the way of wages, interest, materials, etc., as fall to the share of the superior managers, and their lack of skill keeps the output relatively small.

Here, as in the case of land, a fall in profits may be brought about in either of two ways, one socially disadvantageous, the other with an opposite effect. If the general condition of industry is unfavorable, so that fewer goods are demanded, many employers will fail and suspend their business. The margin of employment will then rise. Many laborers will be thrown out of employment. Capital will lie idle. The more able and skilful employers will continue their productive enterprises, but since the differences between employers are now less, profits which depend upon those differences will be smaller. If, on the other hand, the differences are diminished by a change in the character of the poorer grades, the social result will be favorable. The ignorant and shortsighted business man is replaced by one of keen insight and executive ability. The new competition causes

a decline of profit, but the community in general is better off.

*The test of productiveness is the net produce or surplus.* Both rent and profits have been looked upon as a part of the net produce or surplus of industry. A reduction of rent and of profits has been represented to be of social advantage if caused by a rise of the margin of production through the process of improving the quality of the land at the margin, or the men whose control of industry is marginal. The essential element in such a decrease of rent or profits is that it does not in any respect decrease the surplus, but merely transfers it from a particular class of producers to consumers, or to other producers.

Speaking generally, all of rent and of pure profit, all that part of interest which is not a return for present saving, and a considerable part of laborers' income, belongs to the net produce or social surplus. Those who engage in production at a real cost[1] must receive from the total industrial product, as a minimum share, whatever amount is necessary to replace their

[1] See p. 155.

costs. This is the absolute condition of a continuance of industrial activity. Whatever remains is the surplus created, not by the personal activity of the individual, but by the coöperation of all industrial classes aided by the forces of labor and by the accumulations of past industry. The real test of industry is the amount of this surplus. The physiocrats, who were the most prominent economists before Adam Smith, thought that a net produce was to be found only in agriculture. Adam Smith discovered it in manufactures also and traced it chiefly to the division of labor. Modern economics still further expands the idea to make it include whatever portions of the product of industry and commerce are not to be set aside for the reimbursement of costs.

# CHAPTER XVI

## OBSTACLES TO SOCIAL PROGRESS

By social progress is meant the gradual increase and diffusion of wealth, accompanied by the unfolding of human capacity to enjoy it. General prosperity may be promoted by a wiser choice of commodities, by a decrease in their real cost, or by a more intelligent use of them. Every advance in any one of these three directions is a step in social progress. Anything which blocks advancement in any of these directions is an obstacle to social progress. There are innumerable obstacles, some temporary, others lasting; some in physical nature, others in man himself; some baffling the best efforts of the entire race, others acting only as an instrument in the separation of the efficient from the weak, enabling the stronger to crush out the more quickly their unsuccessful competitors.

One of the obstacles that has received most attention because of its relation to other parts

of political economy is the law of diminishing returns. The niggardliness of nature has been held to be the chief limitation to industrial progress. A brief statement and illustration of the law has already been given.[1] It is undoubtedly true that there are limits to profitable agricultural investment on a given piece of land. A piece of ground which is well adapted to agriculture may not be well adapted by location for building or for any other purpose than farming. When the owner has expended upon it a sufficient amount to secure its full normal yield, any additional expenditure will make a very slight addition to the yield, or perhaps none at all. If it were possible for him to go on increasing his investment indefinitely with constant returns, no farmer would ever need to own more than five or ten acres, since he could secure whatever additional crop he desired by simply putting more men at work, and sowing additional seed in his small farm. Practical experience would show that when the point has been reached which gives the crop that is planted a fair chance of success, it will not be very much

[1] See p. 346.

increased by additional work, and if any more men are to be employed profitably it must be on new land. Is this fact then to be regarded as one of the physical obstacles to progress? Not unless the general reason for our inability to secure a larger crop from a given area lies in physical nature, where, in fact, as a rule, it is not to be found.

With any given method of cultivation, and with a given crop, and with only traditional measures of precaution against damage from frost and other dangers, the farm will on an average produce just so much grain and no more. But if the cultivators discover new methods of cultivation, better fertilizers, and a more productive seed, and especially if changes in the habits and wants of consumers enable new crops to be substituted, the total yield may be increased indefinitely. Taking into account larger areas, improvements in transportation similarly increase the agricultural product by bringing new lands into cultivation, thus relieving the older lands from the necessity of producing crops for which they were unsuited, and enabling their cultivators to use them more profit-

ably. A rough test of the whole process is to be found in the price of food. If land is subject to a law of diminishing returns, and cultivators are being forced to ever poorer lands in order to meet the demands of increasing population, there will be seen a general tendency of food to increase in price. The poorer lands cannot be cultivated unless the price of food is high enough to meet the increased expense, and this price will of course become general. If, on the contrary, the price of food is decreasing, this may be taken as evidence that the law of diminishing returns is not in operation, or that it is counteracted by other and stronger tendencies. And such is indeed the case. Agricultural products in general have fallen rather than risen in price in the last generation and in the last fifty years.

There is a law of diminishing returns, but the actual limitations experienced in agriculture, as in other industries, lie rather in social than in physical causes. Under given social conditions we can obtain only so much by our efforts, but the social conditions may be changed and are constantly changing, and there is no reason why

in the future they may not more than counterbalance any restraint imposed by physical nature. As a writer has said, not the niggardliness of nature, but the stupidity of man, causes diminishing returns in agriculture and elsewhere. Whenever additional capital and labor are applied at a given point because a new use has been found for them, they will often bring increased instead of diminished returns. Thus there are limits which seem to lie in physical nature, but which are nevertheless set aside by social changes.

Other obstacles will be recognized as distinctly social and economic, rather than physical. The accumulation of capital is essential to social progress, but one of the chief obstacles to such accumulation in early stages of society is lack of security. There is no sufficient motive to accumulate if the hoard is to be seized by any stronger rival or enemy. Better enjoy, while others are doing so, the result of the chase or of war, than, by saving the share assigned to you, become the prey of those who are able to rob you. The tribal system introduces some elements of security. The ownership of property being vested in

the entire tribe, it becomes the duty of all to fight, if necessary, for its protection.

The recognition of private property introduces, it may be, temporary confusion by again throwing at first the defence of private rights upon the individual; but with an improvement of social order and a full recognition of the importance of police functions of the state, there comes a stronger guarantee of security than before private property is established. What is even more important, there is developed a general respect for the sacredness of property. There is not only less power, but there is also less disposition, to interfere with the property rights of others. Even those who have but little property realize that they are better off when that little is safe than when it is liable to capture or wanton destruction. This obstacle to social progress from a lack of security is one that must be overcome even more completely than at present; and the most practicable method is a better education in the advantages derived from social security and a pointing out of the petty causes that threaten it, rather than

an increase of police vigilance or government interference, except in the extreme cases where these may be necessary. Society gains more from the growth of sound social instincts than from external pressure.

Still another obstacle to social progress is to be removed only by slow educational process. The lack of saving instincts has had even more to do with the comparative failure of communities which have no capital than a lack of security. Improvidence, lack of foresight, inability to anticipate future wants, a vague feeling that some lucky chance will carry one through future difficulties, — these characteristics survive too frequently even in the most advanced communities. Observation will convince that the ones who succeed are they who do most keenly appreciate the future, who take far in advance the initial steps in securing the objects which they most desire, who accumulate capital with infinite care, but who do not hesitate to invest it boldly at the right moment. For it must not be forgotten that saving instincts demand expenditure no less than accumulation. The

capitalist is not he who hoards wealth, but he who saves and uses capital. The use begins as early and is as indispensable as the saving. This obstacle to social progress in the lack of saving instincts has been overcome in the past by the ruthless defeat in life's struggle of those who are without them, and a slow but sure conquest of such persons by those who do their work in serial methods with an eye to the needs of the future. There is no other way in which it can be overcome in the future except as saving instincts may be implanted and developed in all classes by educational means.

Until recent times the greatest of all the obstacles to social progress has been the lack of directive intelligence, of industrial enterprise, of skill in management of the kind shown by men whom we are accustomed to designate as captains of industry. It was not a lack of intelligence, for this has been displayed as profusely in earlier ages, but mental activity was directed into other channels than the supply of common wants and the increase of the agencies that tend to harmonize and elevate those wants. War,

religion, and art, and passion have claimed the highest energies of man. All of these are social and all have contributed to social progress, but due attention to the industrial organization of society is likewise essential. An effective administration of the machinery by which the ordinary wants of men are supplied has been secured only in our own time, and is even now far from satisfactory in many departments of industry. But many of the ablest men of every land are now engaged upon it. The most inventive and constructive minds are directly employed in improving the ways in which goods are made. Others equally able are inquiring into the best ways of using them. The obstacle from this quarter has therefore already become less serious, and we may expect that even greater abilities will be concentrated upon these problems.

Man is a progressive being and shows wonderful capacity for conquering obstacles that seem insurmountable. One after another they are overcome by the more venturesome and the stronger. Less and less they tend to assume a definite and permanent form. Land, capital,

and directing skill become in turn limiting factors. A lack of any one is a serious obstacle, but it cannot be said abstractly that the lack of any one is more serious than that of another. Which one is in fact lacking at a given time is only to be ascertained by direct observation, or by the terms which those who have it to offer are able to make. It is probable that at present in civilized countries labor is more scarce than any one of the other necessary elements. For it is possible that efficient labor may also be lacking and that this deficiency may prove an obstacle. It is less to be regretted than any other, however, for where it exists it implies a high reward to labor. This is itself a favorable condition for social progress where labor is free. A relatively large income for laborers tends to secure that diffusion of the benefits of industrial progress which is an indispensable condition of social progress. It was pointed out in the closing proposition concerning industry, that a diffusion of knowledge is desirable for industrial reasons. Inversely, a wider diffusion of wealth is desirable for its social, educational, and moral results. As nearly as it is safe to formulate a

social ideal, we may find it in a state of society in which the only serious obstacle to further progress lies in the lack of a sufficient number of persons to fully utilize the capital, land, and directive energy in existence.

We may now venture upon a more specific enumeration of a few of the positive obstacles to social progress encountered by various communities in greater or less degree. First may be mentioned a bad climate and a lack of natural advantages, not because these are first in importance, but because they are most obvious, and they are only to a very moderate extent traceable to man's agency. Something can be done by the planting of trees, by irrigation, and in other ways to modify an unfavorable climate, and much may be done to overcome its effects upon human beings and animals; but an absolute lack of the materials of industry can be overcome only by enlarging the environment to include regions more favored.

A despotic, or a corrupt, or an inefficient government may do more to retard progress than an unfavorable climate, or poverty of resources. Of the three species of bad government, it is

difficult to decide which is the most obnoxious. A despotic government destroys individual initiative and self-reliance; a corrupt government saps confidence and undermines the virtues upon which social progress depends; an inefficient government withholds the coöperation upon which citizens have a right to rely. None of them accomplishes the legitimate industrial end of government in acting as a channel through which citizens may freely and effectively unite for those mutual services which are better accomplished in coöperation than in isolation. A government which is strong, pure, and free, is not a "necessary evil," but an excellent means of securing worthy ends. When it becomes deficient in any of these essential respects it becomes in so far an obstacle.

Intemperance and immorality of every other kind are socially dangerous. They are an obstacle to the efficient making of goods, for this requires a steady hand and clear brain. They are an obstacle to the right use of goods, for this demands personal character of the best type. They totally prevent the wisest choice of goods, and so stand as obstacles in each of the

three ways of possible advancement. Strong drink may not be responsible for so large a part of poverty as is sometimes represented in "hysterical" statistics, but it is nevertheless one of the chief obstacles to social progress; and by its side must be put over-indulgence in rich food and in personal adornment and household furniture that are discordant, extravagant, and in bad taste. This whole group of obstacles may be described as the wilful substitution of lower for higher pleasures. Vice and folly account, not only for personal ruin, but for social stagnation.

An applicant for appointment in a benevolent society was recently asked to name in a word the most important cause of pauperism. He replied without hesitation, "relief-giving." The questioner, a high authority on the subject, accepted the reply as correct. Indiscriminate giving is an obstacle to social progress. It creates paupers and subjects to temptation many who are entirely competent to make their own living. It transforms many of those who might add to the social wealth into social parasites living on the wealth created by others.

The withdrawal of indiscriminate public relief has generally been followed by a diminution of poverty and a general improvement of the condition of society. Social progress demands not less of fraternal helpfulness, but less encouragement to mendicancy, and less carelessness concerning the ultimate effects of alms.

War, civil and foreign, has been one of the great destroyers of commerce and industry. It has absorbed energies which might have made for social progress. It has developed anti-social habits and instincts. It has taken the lives of the best workers and has saddled upon nations intolerable burdens of debt. There have been many compensations. War has at times been a civilizer and a useful school for peoples who were having too little domestic and foreign social contact. But under present conditions such contact is secured by commerce and peaceful intercourse. War and preparations for war are obstacles to the inter-exchange of goods and of ideas among the nations of the earth, and upon such changes, progress is most closely dependent. The cost of enormous military armaments must be reckoned among those

obstacles to social progress which might be removed.

Overcrowding of population in the cities and an unduly wide scattering of population in newly settled communities are both unfavorable conditions. In the overcrowded tenement houses it is impossible to furnish a healthful environment for children; it is difficult to satisfy the ordinary bodily demands for breathing-space and light; and it is unreasonable to expect other than unfavorable effects from the strain imposed by constant living in the very midst of a densely packed throng. Good work and, still more, proper enjoyment of the results of work, require hours of relaxation and quiet. These are obtained by the isolated pioneer, but at the expense of that social contact which is likewise essential to human progress. Farm life in America has this drawback in a peculiar degree, because each family, as a rule, lives on its own farm instead of in villages as in European countries. An American farmer travelling by rail through the most populous provinces of Germany will be surprised at the comparatively deserted appearance of the country. He does

not see farmhouses scattered here and there, as at home, with a grove of trees about each. The houses are grouped in an almost continuous line of villages along a well-built road, and the trees are in forests planted and guarded by the State. The disadvantages of the American system become more apparent as communities emerge from the pioneer stage and begin to attach more importance to social intercourse. Many reformers are beginning to see the importance of adding to the interest, variety, and attractiveness of American farm life. Anything which will accomplish this will relieve the difficulties both of oversparseness and of overcrowding.

One of the surest indications of satisfactory progress is the absence of too heavy physical labor by women and children. The invention of machinery, while it is in itself a blessing, has sometimes proved almost a curse by increasing the opportunities for child labor. This is one of the subjects upon which there are few advocates of a *laissez-faire* policy. All are agreed that parents ought not to be permitted to sacrifice the mental and physical development of their children by putting them at heavy or long-

continued work as soon as it would be possible for them to earn wages.[1] Aside from the bad effect upon physical growth it is short-sighted and wasteful from the social standpoint. This is the time for education, and the education should be as nearly as possible to the whole mind and body. The experiences of the race should be passed on unbrokenly, and up to a certain point these experiences can be imparted to all the children of men. Laws prohibiting child labor and requiring attendance at school, or other suitable provision for youthful training, are therefore in the interests of progress.

Woman labor on the farm or in the factory

[1] In the large stamping works and canning factories in a city like Chicago, not a day passes but some child is made a helpless cripple. These accidents occur after three o'clock in the afternoon. The child that has begun his work in the morning with a reasonable degree of vigor, after working under constant pressure for several hours, at about three o'clock becomes so wearied, beyond the point of recovery, that he can no longer direct the tired fingers and aching arms with any degree of accuracy. He thus becomes the prey of the great cutting knives, or of the jaws of the tin-stamping machine. Proper factory legislation would prevent young children from working so many hours as to become wearied to the point of danger.— Professor William O. Krohn before the National Conference of Charities and Correction, 1897.

may prove socially disadvantageous, but it cannot well be forbidden or closely regulated. Any attempt to do that would bring greater injury than relief. The opening of new occupations, rather than the closing of old ones, is the true path to progress. The necessity of breaking up or neglecting the home in order that women may earn wages in the heavier manual occupations is nevertheless always to be deplored. Social progress is not accelerated, but retarded, by any such interference with normal family life.

An improper diet must be given a prominent place among the obstacles to social progress. Food that is not nutritious, that is improperly cooked, that does not contain the food elements in a well-balanced proportion, that is not suited to the climate, or that is unduly expensive, is far more common than that which combines the qualities of a good diet. We need not go so far as to ascribe the poverty of Ireland to the potato, or that of India to rice, for diet is but one element of the standard of living; and many causes may unite to bring a people to a condition in which a cheap article of diet will alone

prevent famine. But changes in diet come very near the beginning of progress, marking the line between primitive and progressive communities. And in the most advanced stages, a nation finds one of its chief sources of strength or weakness in the character of its diet. If it is inexpensive, varied, and nutritious; if its various items contain the food elements in the proportions in which the body can use them; and if, finally, it is of a character that makes the best use of the available natural resources, — then it is an economical diet and a source of social prosperity. The obstacle to social progress which is here emphasized is not so much the absence of the materials for a proper diet, as the absence of skill in cooking and in buying provisions that prevents poorer families, and also the families of larger means who rely upon ignorant cooks, from getting what they might from the food within reach.

# CHAPTER XVII

## DISPOSITION OF THE SOCIAL SURPLUS

THE entire product of industry is distributed among those who have helped in the production, or have otherwise established a recognized claim to a share in it. Every producer receives a minimum share sufficient to cover actual costs, and if in a favorable economic position, a share also in the surplus. This surplus arises from the increased efficiency of labor, the invention of machinery, the discovery of natural resources, the accumulation of capital, the development of new kinds of human ability, the substitution of a more economical diet, a removal to more favorable environment, and the various other ways of reducing costs and increasing utilities. There is a surplus as soon as industry provides more than enough to replace all costs, giving to each producer the amount of his investments, including the cost of subsistence during production. Even in an undeveloped state of industry, nature

may be so liberal that there is a surplus in agriculture or in mining. The commercial nations secure a surplus by carrying products to places where they have greater value; and the improvement of the industrial organization, by introducing the division of labor, machinery, and superior management, gives a greater surplus still. While these changes are in progress there are also social changes which enable people to do equal work with less loss of vitality, and, on the other hand, to obtain greater enjoyment from equal quantities of goods. The surplus is increased as much by these social changes as by the material changes which directly affect the making of goods.

One who turns his attention to the subject of economics, as soon as he understands its scope, naturally asks himself two questions: Where do goods come from? What becomes of them? In answering the first question we soon learn they do not come as a rule from the labor of the person who has possession of them, or, at least, not exclusively from his labor. Hundreds of laborers, many of them skilled mechanics, others inventors, others travellers, still others farmers,

miners, and merchants, have coöperated to make the goods in question. It may be that the one who now has them has performed labor which is an equivalent for all of this labor previously expended by others, so far as there are any living claimants for an equivalent; but nature has also contributed, permanent improvements made by past ages have been utilized, inventions for which the patent has long since expired, and methods of work suggested by the bright minds of previous generations, have since become the common property of mankind. So the answer to the question where goods come from is not so simple as it appears. It is found only in a full study of the whole field of economics. One of the first things learned about it is that for many items in their present utility you cannot find any person who can claim to have incurred a corresponding cost, and therefore that society has on its hands a surplus to be distributed otherwise than in accordance with the law of costs.

The answer to the second question: What becomes of the goods produced by society? will bring this out still more clearly. In fact,

goods are distributed in two quite distinct ways. If the entire product of industry were exactly large enough to replace actual costs, the distribution of wealth would be a simple matter. Each producer would receive from the product sufficient to cover his costs; the laborers and manager enough to purchase the food and shelter absolutely needed to keep themselves in working condition, capitalists enough to maintain their capital, landowners enough to replace the losses from cultivation. Such minimum shares are a condition of the continuance of industry. As a rule we use the word wages to designate the income of laborers, interest that of capitalists, and rent that of landlords. But where there are only minimum shares, as above described, there is no interest, for this includes only the return obtained for the use of capital, and of course there is no interest unless the capitalists receive something more than the amount which they have invested. Similarly, there is no rent under such circumstances, for there is no income deserving this name until the landlords secure from the mere possession of land more than enough to cover

the expenses of keeping it in cultivation. In a state of slavery, even wages are absent, and we may therefore readily imagine industries which only replace costs, giving to each class of producers a minimum share sufficient for that purpose, but not sufficient to afford any surplus.

The substitution of free labor for slavery makes necessary the payment of wages even where there is no surplus, but the mere fact that the wage system is adopted is no indication that laborers are receiving more than the minimum share essential to the continuance of a laboring population. Both rent and interest, however, are an indication of a social surplus. Capital may always be so utilized as to enable society to realize a surplus. The very appearance of capital is proof that labor is more wisely directed and is turning into more efficient channels. Rent arises from the cultivation of land of different degrees of productiveness. Costs are covered and the minimum shares obtained on the poorest land cultivated and the rent on each better grade measures the differences between the yield of that grade and the poorest land, or the land at the margin of cultivation. It is

purely a surplus owing its existence and amount to the superior productiveness of the better grades of land. The total income of capitalists, landlords, and laborers is thus made up of two parts: one, a minimum share obtained by the physical impossibility of contributing to industry without it, the other, a share in the surplus called respectively surplus wages, interest, and rent.

It might be well if there were a single word to represent that part of a laborer's income which is in excess of his costs, corresponding to the surplus income of capitalists and landlords. But even if there were such a word it might be impossible to make the distinction in practice. Commodities consumed by man serve a double purpose in sustaining his vitality and conferring pleasure. Those which are consumed only for the second purpose often really serve the first as well. The transition from necessary wages to surplus wages is imperceptible. Some laborers might even deny that they ever receive surplus wages from a confusion of necessary wages with fair or just wages. But it is perfectly natural and just that laborers should share

in the surplus. It is also generally possible for them to do so.

The law of costs is, then, the first part of the law of distribution. Every class whose coöperation is required in production will receive from the product such a part as will put it in the end in as favorable a position as at the beginning. Every loss of vitality must be covered, every personal cost made good. We may, indeed, imagine a temporary state of affairs in which costs are not replaced. Through some extraordinary pressure, such as that of war or religion, a community may permit its capital to be sacrificed, its population diminished, and its natural resources squandered in some undertaking which gratifies ambition without securing the conditions of future production. But such instances are exceptional and aid in proving the rule, for the exhaustion of national strength that would follow would soon make impossible a continuance of these enterprises, and, taking into account the rapidity with which material wealth is used up when not constantly replaced, it seems likely that the law of costs would assert itself very quickly.

No person or class of persons is assured of a living or of a minimum share in distribution otherwise than by contributing to the social wealth the value of a living. The law of costs is not a statement that every person who works, regardless of the amount and quality of his work, will receive a share in the product of industry. Humanity or self-protection may prompt society to interfere in extreme cases to prevent actual starvation, but in that case it is not a minimum share in distribution that is awarded, it is a gratuitous share of the surplus. What is assured by the law of costs is that each class will receive in return for its participation in the work of society, provided its assistance is effective and rightly directed, at least as much as the effort has cost. It will probably receive more, but certainly, as a rule and in the long run, not less. If there is only enough for each necessary class of producers to receive so much, none will receive more than this minimum share, and there is no surplus to divide.

Generally, however, the sum of the minimum shares does not equal the total product. There is then a competition among different classes for this

free portion. Various theories have been put forward to account for its disposition, each theory suggested by the manner in which the disposition of the surplus is made, or is supposed to be made, at the time when the theory is formulated. The mercantilists, whose ideas of national policy controlled Europe in the seventeenth and eighteenth centuries, looked upon the struggle for the surplus as taking place between communities rather than between individuals. They concentrated their energies in each country upon the creation of a favorable set of political, social, and economic conditions for the trade and industry of their own people, striving to secure the largest possible share in every division of land or treasure which fortune opened to them in distant regions of the earth, and exacting heavy tolls for every commercial privilege granted their neighbors. In particular they took strong measures against the exportation of gold and silver even in exchange for goods, believing that a loss of money was an evil of greater moment than almost any other against which it was necessary to guard. By such means they attempted to secure for their own nation the full share in

the surplus wealth to which their strength and ingenuity entitled them. Within the community the amount received by each class had long been regulated chiefly by custom. Each class was allowed by the community to live in a manner which corresponded with its established position. If the general income increased this became improved, but it remained fixed in its relation to the position of other classes.

This system was displaced in the latter part of the eighteenth century, in France, by the economists or physiocrats, who denied any peculiar advantage to the possession of money or the maintenance of commercial restrictions. All net surplus, they taught, comes from agriculture. Those who engage in commerce and manufactures consume exactly as much as they produce. Those who cultivate the soil alone produce more than is consumed in cultivation, and the whole community therefore depends upon its agriculture for its increase of wealth. Public burdens should be placed upon land, where it must ultimately fall, and all other occupations should be left free from both burdens and restrictions. The coöperation of nat-

ure was thought by this school of economists to be the real source of surplus wealth. The modification which they proposed in its disposition did not reach so far as a positive distribution among different classes. They proposed simply that all classes should be put upon an equal footing by a removal of the positive regulations and restrictions imposed in the mercantilist system and a transfer of public burdens to bring them as near as possible to the source of all surplus wealth — agricultural produce.

Adam Smith, whose *Wealth of Nations* appeared in 1776, likewise favored a removal of restrictions and an introduction of complete commercial and industrial freedom. But he thought that the surplus came rather from the division of labor, by which he meant the whole organization of industry. His urgent plea is for the abolition of all traces of the mercantile and colonial systems, leaving each person free to choose his own interest and to establish such economic relations with fellow-workers as would be to his advantage. Adam Smith is remembered by people in general chiefly for his attack on the mercantilist teachings and on the system

of protective tariffs, bounties, and restrictions on labor, but his work is of interest to students of economics, not for those things alone, but even more for his complete demonstration of the general principle of industrial and commercial freedom, and for the manner in which the operation of self-interest works to the advantage of society. The surplus will distribute itself, if there is no interference, in such a way as most efficiently to promote industry and the general good.

The socialist theory, held by many who desire to abolish the present industrial system of wages, private property, and private contract, is that the surplus, though created by labor, is seized by those who control the physical means of production, such as land and capital, and that the laborers who do not own property may be kept at the verge of starvation, with incomes only large enough to keep up the necessary supply of laborers. The law of population, the law of rent, and the peculiar explanation of the nature of capital worked out by Karl Marx and others, constitute an argument for transferring the entire control of the instruments of production to the State. It is claimed that the surplus belongs

to all and that all should share in its enjoyment. "From each according to his abilities; to each according to his need," is a favorite saying of those who hold to this view.

Still another method of accounting for and disposing of the surplus may be mentioned. It is held by those who look upon rent as the only real surplus, and who propose a single tax on land values as the solution of the problem of poverty and the condition of social progress. All incomes may be reduced to rent, wages, or interest. The law of wages, as given by Henry George, is that laborers will receive all that their labor can produce upon the poorest land which it is necessary to cultivate. The law of interest is that capital will receive whatever capital adds to labor when employed upon the poorest land which it is necessary to cultivate. Even on better grades of land, capital and labor will obtain only these minimum shares, the balance of the product going to the owners of the better grades of land as rent. It is the landlords alone, therefore, who receive a surplus share, and the right way of securing this surplus for the community is to abolish private property in land, — leaving the

owners in possession, but depriving them of all advantage from the superior quality of their land by taxation. It is thought by advocates of the single tax, that the revenue from this source would be so large that all other forms of taxation could be abolished, and that the surplus obtained would be sufficient, not only to meet the expenses of all activities now undertaken by the State, but to enable it to undertake vast improvements in the direction of better schools, libraries, parks, roads, etc., and even to completely abolish poverty and want.

No one has yet ventured to say that wages are the only true surplus, although, as will be seen from the preceding paragraphs, this claim has been put forward for the returns from nature, capital, money, industrial freedom, and land. But in his theory of wages, one of the most eminent American economists, Francis A. Walker, comes near taking this position. In his theory of distribution, wages, though they do not absorb the entire surplus, are nevertheless the residual share, and it is to wages that all the gains are added which spring from improvements in the arts or more efficient pro-

duction, whatever the cause, unless these improvements are of a kind that call in new grades of land and so increase rent, increase the demand for capital and so raise interest, or enable a poorer class of employers to survive and so increase profits. It is held by Walker that there is a definite law of rent, as set forth in the early part of this chapter, and a law of profits closely corresponding to the law of rent, based on differences in the managing abilities of employers, as rent is based on differences in soils. Interest is determined, according to Walker's theory of distribution, by the supply of and the demand for capital, the rate always rising or falling in such a way as to maintain an equilibrium between them. Thus, there is a law for rent, for profits, and for interest, definitely fixing the amount that can be claimed by landlords, employers, and capitalists. All that remains is wages. Laborers are the residual claimants, and, if they are intelligent and look to their interest, they will have no difficulty in securing the chief benefits of progress, whether it take the form of improvements in the arts, social development, or increased resources. If new lands are discovered,

it is probable that the result will be to reduce rents and increase wages. If capital is increased, interest will fall and wages rise. If employers of a higher grade replace those who are incompetent, the total amount of profits will be less rather than greater, and wages will absorb what is thus set free. The laborers are, therefore, in a favorable economic position, whatever the character of the improvement; and although they do not obtain the whole surplus, they secure by far the larger part.

The student may find himself by this time sadly puzzled to know what is the real truth of the matter. If the opinions of those who have studied industrial conditions closely differ so widely, is there any way of finding out what does become of the goods produced by society; whether capitalists, landlords, employers, or laborers get the surplus; or whether all share in it; and, if the latter, whether there is any way of telling which shares of the surplus will be liberal and which ones will be small?

The truth seems to be that the surplus is distributed with as great regularity, and as strictly in accordance with law as are the minimum

shares; but that it is not always the same class that holds the favored position. At one time capital, at another land, at another managing ability, and at another labor, may be able to secure for itself the free surplus. At any given time that one of the factors, necessary in production, which is increasing at the slowest rate, will be able to secure the benefits of the improvements in production and to reduce the shares of the other factor as nearly as possible to the minimum fixed by the laws of cost.[1] It is this share also which must bear the permanent burdens of society.[2] At the time of the Napoleonic wars, the price of food rose, agricultural products increased in value, there was a strong demand for land, and rent became in England the share which most attracted attention. The supply of land could not keep pace with the demand for food; cultivation was pushed down to poorer lands, and the income from other sources than land was very much reduced. Under those circumstances, rent was the share which took the surplus, because land was the

[1] Patten, *The Stability of Prices*, p. 31.
[2] Ibid.

factor in production most urgently in demand, and it was land which eventually bore the permanent burdens.

In a later period the industrial revolution and the changes in demand created an altogether new place for capital. The opening up of new countries, and the improvements in transportation, made land more plentiful, but capital was lacking to take advantage of the new opportunities. The land could be had for little, because its owners were competing with each other for the capital necessary to develop it. Wages were low because the new industrial processes had lessened the demand for labor in particular industries, and because in England a vicious system of poor relief reduced the general standing of living and unduly stimulated the growth of population. The most slowly increasing factor was capital, or rather capital and managing ability combined, for they were not yet easily separated, as became possible afterwards with the extension of credit. Profits (including interest) were, therefore, the share which increased so enormously as to excite the apprehension of socialists, trade-unions, and coöperative leaders.

It was thought that the interests of capital and labor were in direct conflict, no account being taken of rent. The possession of capital was seen to be the means by which the largest share in the surplus of society was secured, and it brought as its penalty the necessity of providing for the burdens of society. If, for example, a poll-tax was levied on laborers, it was thought that it would be shifted to capitalists, since laborers only received sufficient for maintenance, and they could pay the tax only by securing a corresponding increase of wages.

We have been passing through a period in America in which not land, nor labor, nor capital was the most slowly increasing factor, but rather managing ability. The opportunities for developing new industries and the supply of all the essential physical factors have been present in greater abundance than the organizing skill and enterprise required to make them really productive. The lack has not been greater than in other countries, but has only been relatively noticeable in comparison with the supply of other factors. Profits in the narrower sense, independent of interest, as a return for superior

management, have been large because the men who have the qualities displayed by the captains of industry have been rare, and those who have appeared have been able to secure the other requisite factors on easy terms. Monopolies have arisen under these conditions, and the taxation of monopolies has been a source from which communities have been able to secure a large part of their revenues, though not so much has been made of this opportunity as might have been. Permanent burdens have rested in this instance, as in the earlier ones, upon the factor which was able to secure the largest part of the surplus.

The nearest rival for the lion's share of the surplus product has been, not capital, nor land, but labor. The fall in the price of food indicates a rise rather than a fall in the margin of cultivation. The differences in the qualities of soils have become less rather than greater. Rent has diminished rather than increased, except in the special instances of ground rents, of terminal facilities, and of favored building spots which follow the law of profits rather than that of rent. The rate of interest, after eliminating the ele-

ment of risk, has considerably fallen. Capital is saved for a much smaller reward than formerly. The appreciation of future wants has become more general. Neither rent, nor interest, have been increasing their portion of the surplus, though it is from the surplus that both are drawn in the first instance. In the competition between employers and laborers for the surplus product, the present tendencies seem to favor wages and not profits. It is true that there is a large class of unemployed, and that in exceptional cases it is still possible to make extraordinary profits. But the number of employers who are capable of organizing some special industry profitably is increasing. This works to the advantage even of the unemployed, for one reason of their lack of employment is the absence of men of this kind. If there are enough effective managers to utilize all the good opportunities for industrial activity, it will go far toward giving employment to all. Increased steadiness of demand enables an employer of even moderate ability to keep his establishment in operation. Demand for new commodities calls for abilities of a kind not already in use.

New discoveries make possible the establishment of an industry in a new place, on a more economical basis, or with a different kind of motive power. The development of new qualities in the laborers permits the introduction of an industry from a foreign country. Many similar tendencies are at work, the effect of which is to increase the rate at which employing and managing ability is supplied, and so to reduce the rewards of the few who have supplied it. It would seem that in the near future, effective labor is more likely to be the limiting factor than any other. If it should be true that land, capital, and directive intelligence are all supplied at a more rapid rate than efficient labor, then we may expect to see wages remain, as it has to some extent already seemed to be, the residual claimant on the industrial product, the natural heir to all the improvements that come from industrial and social progress. To maintain such a position there must exist a high standard of living and a series of social institutions which prevent an undue pressure of population, and secure adequate hours of recreation and the maintenance of a high type of family and social life.

# INDEX

# AN OUTLINE FOR THE STUDY

OF

# CITY GOVERNMENT

BY

**DELOS H. WILCOX, Ph.D.,**
*of Columbia University.*

**12mo. Cloth. $1.50, net.**

The author holds that the City problem is the key to the immediate future of social progress in this country, and he offers for the first time a systematic outline for the study of the whole municipal field, indicating the chief problems in order, with facts and illustrations sufficient as a basis for intelligent interest and a guide to the sources of further information. He discusses in turn problems of function, of control, and of organization, and his book will be very useful, not only to students in colleges and secondary schools, but even more to any class of citizens who are interested in the betterment of municipal conditions through the development of intelligence and the sense of civic responsibility.

---

THE MACMILLAN COMPANY,
66 FIFTH AVENUE, NEW YORK.